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CONTENTS OF NO. IX.—VOL. IX.

Education for the Young Farmer,.....513
Will Wheat turn to Chess?.....519
Cure for the Garget,.....522
Clear your Apple-Trees,.....523
Water Rods—Potato Rot, Remedy,.....527
An Error—Corn Planting,.....529
Too Much Land,.....530
The Stump-Puller,.....531
Clover and Timothy,.....532
Experience with Mice in Orchards,.....534
The Farmer and the Civilian,.....535
On Insects,.....537
Hot-House Plants,.....539
Native Cattle,.....540
Plants must have Food,.....543
The Last of the Sort,.....544
The Season—Bread from Maize, Rye, &c.,.....545
Ripening of Manures,.....547
The Treatment of Children,.....548
The Advantages of System in Farming Operations,..549
U. S. Agricultural Society,.....551
Woonsocket, R. I.—Its Industry, &c.,.....555
Gas-Lights, &c.,.....557
Liquid and Solid Substances used for Illumination,..561
Artificial Stone,.....565
Railroad Management,.....566
Recent American Patents,.....567
Junior Editor's Table,.....569
Domestic and Miscellaneous,.....571
Progressive Agriculture,.....572
Book Notices,.....572
List of Patents,.....573

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The Plough, the Loom, and the Anvil.

Vol. IX. MARCH, 1857. No. 9.

Agricultural.

EDUCATION FOR THE YOUNG FARMER.

It would be erroneous to suppose that education for a particular employment could fit any one for it without practice. The idea would be too much like that of the hero in one of Æsop's fables, who, after a narrow escape, "swore not to touch the water until he had first learned to swim."

It would be hardly less laughable, to expect that education alone, without practice, would qualify a young man to take charge of a farm. We would about as soon trust to a swimmer, who had never touched the water, to save us from drowning, as trust the care of agricultural property to a man who had been educated aloof from the farm. Education, in the limited sense of *training and informing the mind*, is not sufficient to make a farmer.

No amount of education, in the foregoing limited sense, nor even if conjoined with practice, can make a young man as well qualified to manage a farm, at twenty, as at a later period of life. Some things *must* be learned by experience; and farming is one. We have not the remotest idea of making the young men wiser than their fathers. If they can learn more than their fathers had learned at their age; and then can by due diligence maintain that advantage through life, a progress, from one generation to another, will be indicated; and there will be a ground for the hope that the farmer will ere long—in another generation, if not in this—attain that position and influence which the public good requires that he should hold.

Discarding then all extravagant expectations, as that books and schools alone can make good farmers, or that any training whatever can make the sons at twenty as skillful in their business as the fathers at sixty, but indulging what we regard as only a reasonable hope, that there may be some progress among farmers, as among those of other callings, from one generation to another, we inquire, *What is the education wanted by the young farmer*, and *How is it to be obtained?*

So many foolish things, as it appears to us, have been said on this subject, that we fear to say much, less we should seem to others to talk as foolishly, as *some* others seem to us to have done. The ques-

tions we have proposed are susceptible of a great variety of answers. Indeed, a great many are already before the public.

The first question is, What is the education wanted by the young farmer? Is it peculiar? To some extent it is; and for this reason we highly approve the expression so often used, "educated for the farm." But we remember that the ox is educated for the farm. Many an ignorant laborer, with only one degree of intelligence above the ox, is educated for the farm. Both will do good service if directed wisely. But when we speak of education for the *farmer*, we mean something very different. The idea of an unintelligent drudge does not enter our head. We think of a man who is to work—work is in our esteem honorable, health-giving, promotive of happiness—but not of one who is to work himself *down*. The farmer should be *up* in the world, and if we could have our way he should be.

The idea that the farmer must necessarily work with such severity as to reduce him to a drudge, to disqualify him for society, for enjoyment, for general usefulness, to put him behind others in point of elasticity of mind, cheerfulness, courage, influence, and a decent conformity to the usages of society, is only because too many farmers will have it so. They first create, and then complain of, a low estimation of their calling. When we speak of education for the farmer, we always mean more than we say. We mean education for an American citizen—one who choses to cultivate the soil for a livelihood, but who means also to be a good and a useful citizen, at home on the farm, but not unknown beyond it, cognizant of his duties to the town, the county, the State, and the country.

Nine tenths, then, of what the farmer needs to know, is just what all other good citizens should know. He wants a mind, cultivated by study, its powers so developed as to afford him a consciousness that he is not inferior to those around him. The object of a large portion of the education suitable for a young farmer, is not primarily to make him a farmer, but to make him a *man*, such a man as would grapple with any profession and do honor to any. If, then, he chooses to devote himself to what has too often been called the very humble calling of agriculture, that calling will be less humble for his being in it. No calling can long be thought low if filled by intelligent, educated, reading, *thinking* men. That farmers of the present generation even can be such, if they will; that their children, *if they will*, can advance somewhat beyond their fathers; and that each succeeding generation can elevate themselves and consequently their calling still higher, is our firm belief.

Whatever is peculiar, in the education required for the young farmer, seems to us to be, that while he should strive to be as well informed as others in all the branches constituting a good general and

business education, he has more need than any others to be instructed in natural history. Analytical chemistry has become a branch of business by itself. To excel in it requires very much time and patient study; and we have always doubted whether the practical farmer should divide his time between that and the labors of the farm. Others, and among them Prof. Mapes of this city, for whose opinions on all subjects of this kind we have a thoroughly sincere respect, think otherwise. Whoever may be in the right in this matter, one thing is certain;—a knowledge of the general principles of chemistry is of great value to the farmer, both as affording pleasure to the cultivator, in the way of explaining many phenomena on the farm not otherwise understood, and of enabling him to comprehend and put into successful practice the instructions of scientific men who write for the farmer. But the natural history of soils, plants, animals and insects is of more practical value to the farmer than to any other class of men. Mechanical philosophy is of hardly less interest to him than to the mechanic; and what is known of climate, he, of all others, should study. Such is his connection with nature, that if his mind be early directed to her laws and operations, he can hardly avoid learning more and more of them through life. Nature herself becomes his instructor. He dwells in her domains, and she will be always imparting lessons to him, if his mind was sufficiently cultivated in the outset to enable him to comprehend them.

Reading, spelling, writing, arithmetic, English grammar, history, natural philosophy, political economy, and some other branches are wanted by the young farmer, in common with all other young men. If, in addition to these, he can get a pretty good knowledge of the general principles of chemistry and an insight into botany, the formamation of soils, zoology, entomology, and climatic peculiarities, he will have an education fit to begin life with—such a foundation that he can hardly avoid building upon it, and turning the whole to practical use all the rest of life. Let us be understood. We do not mean that the young man should be withheld from the farm till he has mastered all science; but why should he not be so taught by the best masters, as to enable him to take lessons all the rest of life from nature herself? A man without eyes might wander through gardens, orchards, meadows, and cull no flowers, gather no fruit, admire nothing. It will be so with the farmer, if he enters his profession uninstructed. Nature will invite him, open her cabinets before him, tender him her revelations; but alas! he has no eyes to see, no ears to hear, no disciplined mind to arrange, classify and remember her instructions; whereas, if he had learned but the A B C of chemistry and the natural sciences, these would have been as eyes and ears,

through which his daily converse with nature would have poured knowledge into his mind for the rest of life.

Our second question is, How is the young farmer to acquire such an education as is desirable for him? The answer is, that so far as the branches desired are common to him and all others, and these constitute by far the larger portions, he is to seek them at our schools and academies in company with all other young men. As regards the few branches peculiarly important to the farmer, because connected with the every-day business of his life, it is hard to say what should be done. Shall these branches be pressed into our public schools? If so, it would manifestly be only for the benefit of the older pupils. The majority would be too little advanced to be able to receive much benefit; and two great difficulties seem to be in the way;—one, the impossibility of supplying these schools with adequate teachers; the other, that if you could procure very Isaac Newtons and Hugh Millers for all our schools, even *they* could not do justice to these sciences, without more expensive apparatus and collections than parents would be willing or able to furnish, nor without neglecting their equally important duties to the smaller children. We leave this matter here for the reflection and suggestions of others.

Shall we have colleges for this purpose? We mean colleges in which farmers' sons, and generally such as desire an education suitable for the farmer, shall be separated into a sort of a clan, and kept apart from all others, during the time devoted to such studies; and we are perfectly free to say that we should want to think a long time, and to anticipate all possible consequences of such a cause, before we could commend it. We see, or think we see, difficulties, more than we have now the space or the disposition to trouble the reader with; and although we have rejoiced in the willingness manifested by legislatures and by individuals to endow such institutions, and that because we have been ready to jump at anything which seemed to promise advancement to the agriculturists, yet we now seriously doubt whether an agricultural college, in any proper sense of that term, ever will be, or ought to be, established in our country. We hope at least that the friends of agriculture and of agricultural education will consider well before they invest large sums in brick and mortar, in the shape of dormitories for such a purpose. It may be well, but we doubt it. If we are not entirely wrong, our colleges for general, or rather for professional education, consist quite too much in tall buildings, and in grossly rude manners, arising from separating those of one sex and of one age from all the rest of humanity, and shutting them up to become vulgar in a too great familiarity with each other. We should be slow to commend any plan which would subject a still larger number of our young men to alike seclusion from general so-

ciety, with like consequences. That our old colleges are behind the age, nobody doubts. Certainly they are not to be imitated in the construction of new ones for other purposes.

It has seemed to us that instruction in chemistry and the natural sciences in their relations to agriculture, should be given mainly by lectures, the students to read on the subjects, to converse with each other, examine collections, take drawings, etc., as would be best calculated to impress the facts to be retained on the memory. All this would imply that they should have attained some age and mental cultivation beforehand; and what would especially commend this plan to our mind is, that it need not be confined to children, nor to any young persons, but would be suited to persons of any age. Say for instance, that six lecturers, one on chemistry, one on practical agriculture, and four on as many branches of natural science immediately connected with farming, should give each a lecture a day, one from 8 to 9, another from 10 to 11, another from 1 to 2, another from 3 to 4, another from 5 to 6, and another from 7 to 8 o'clock. It would be rather hard work to attend six lectures in a day, and to keep it up five days in a week, for say six weeks in succession, but then farmers expect to work rather hard, and here a great object would be presented. A prodigious amount of instruction could be given. Our idea would not be, that cold, stiffly written lectures should be read, but that the lecturer, being master of his subject, and brim full of it, should *talk* it into his hearers more rapidly, with more familiar illustrations than accord with formally written lectures, with permissions on the part of the hearer to propose an occasional question, and with the passing round of samples or specimens adapted to illustrate the subjects.

A corps of six lecturers, with such apparatus, cabinet, and books, as could be collected, with suitable rooms in which to deposit them, and a large lecture-room, might constitute a sort of agricultural college for a State, made up more of living men than of dead building materials. We would propose that the lecture term should be in the winter, embracing the months of January and February; that these courses should be repeated each winter, with such improvements as the faculty of instructions might be able from time to time to make; and that essentially the same courses should be given by the same lecturers in at least two other important locations within the State each year, say in one just previously to the winter's lectures at the central location, and in the other subsequently to them, so as to bring the whole instruction in the three places between the first of November and the last of April, a time when farmers can better leave home, and better spare their sons than in summer. The places where these courses of lectures should be given, aside from the central point, should be selected with reference to a just distri-

bution of their benefits over the whole State. The faculty might first go to some place where a large and convenient lecture-room should be tendered by the people, and where a guaranty should be given for boarding at a reasonable price all who might wish to attend their lectures; the next place might be in a different part of the State, where the same conditions should be offered; and so round, till in a few years every part of the State should have been reached.

A model farm might be connected with such an institution, or not, as should be thought best. For our own part, we have seen a good many model farms, but the best we have seen are those owned and carried on by private individuals; and we very much doubt whether any one owned by a State, and carried on by its agents, ever has been or ever will be conducted as well.

We have no space to defend the view we have taken against the objections that may arise, nor have we taken space to state it sufficiently in detail, to be quite sure that we shall be understood. Any project by which a few might be instructed at great expense to the State would not suit us. We want a plan by which many may *directly* participate in the benefits without great expense to the State.

Would our plan reach the wants of the many? We think it would. For the already pretty well educated schoolboy, it would be just the thing. The young men already in charge of a farm could attend these lectures with the greatest advantage; and if he should take his young wife along with him, it would not do her the least harm in the world. And the farmer still older, but not too old to learn, might attend, and if his wife, and sons and *daughters even*, should attend with him, so much the better. Recent indications in Bond street, N.Y., and in Higham, Mass., look as if women are *dangerous;* but after all we don't believe it.

With an enormous pile of buildings, a broad farm to be conducted without the owner's presence, and all the uncertainties of an untried enterprise, we should *fear* there would be a failure to make the benefits equal the expenditures, and that the best friends of agriculture would be mortified with the results.

With a corps of lecturers, willing to give their lectures under the most favorable circumstances, at the center of the State, and with such accommodations as could be secured in its circumference, we should expect greater benefits at less cost.

In all this we may be wrong. We are not over confident. Objections we know there are, and we are willing they should be stated in their full force. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WILL WHEAT TURN TO CHESS?

WHETHER wheat, under any circumstances, will so degenerate as to turn into Chess—or Cheat, as it is more commonly called—(*Bromus secalinus*,) has long been a subject of controversy; and although much has been said, both *pro* and *con*, the whole matter, as yet, remains *lis sub judice*. This question, although it has excited much interest amongst farmers, will, perhaps, never be answered satisfactorily to all; because all are not capable of reasoning, nor do they seem to appreciate reasons when offered by others. We should think that this controversy might be decided by actual experiment; but this would require much labor and patience, and people in this *fast* age—this age of *steam* and *electricity*—are too anxious to become rich, to spend their time in making experiments which will add nothing to their stores.

We do not expect to be able to say anything new on this hackneyed subject. Our object is rather to elicit the opinion of others, and induce those who may differ from the views here advanced, to bring forth their strong reasons. Perhaps we may be able, after a while, to arrive at the truth on this subject—if not, a good-natured discussion will do no harm.

We shall not attempt to argue this question *experimentally*—for, a satisfactory experiment we have never made—but we think that we may arrive at a pretty fair conclusion, respecting this matter, by observing the laws which nature pursues in the production of plants.

It is an established law of nature, that "everything shall yield seed after its kind." This is one of Heaven's laws, and we have never known a departure from it. If we plant *corn*, we confidently expect the yield to be *corn*—not wheat or rye; if we sow *oats*, we expect a crop of *oats*—not barley or rice; and so of any other grain. Nature is always uniform in her operations, and will never disappoint us. Our success in farming, and our encouragement to cultivate the soil, are based on this unchangeable law. We may be disappointed as to the *quantity* and *quality*, but never as to the *kind*. It may depreciate—the quality may be inferior; and by the mixing of pollen, a *hybrid* may be produced, or new *varieties* originated, but the *kind* will be the same. Or to speak more *botanically*, the *species* may be varied, but the *genus* remains the same under all circumstances. A departure from this law, would introduce disorder and confusion into all the works of nature. We would have no encouragement to sow, because we would have no certainty of reaping what we should sow; and this would contradict an express declaration of Scripture, that "Whatsoever a man soweth, that shall he also reap." It is true, this has re-

ference to man's *moral* conduct; but the language is figurative, and will hold good in *nature*, as well as in *morals*, otherwise the figure would not be a proper one, and would not carry out the important truth intended by the apostle.

It is believed by many, that wheat forms an exception to the general rule; for, under certain circumstances, they say it will produce Chess, which is not a *species* of wheat, but is "*sui generis*"—something of its own kind—distinct in its nature, and entirely different from wheat. Now, this is assertion without proof, or any evidence to support it. Such a thing would be an infringement on the laws of nature.

We admit that, sometimes, there may be a *lusus naturæ*, both in the animal and vegetable kingdoms; but instead of this being a law, it is an exception to, or rather a departure from, a known law of nature; and as such, it has nothing to do with the case in hand, unless it can be made appear that chess is something of the same nature; and this, we think, would be hard to do; for it is a remarkable fact, that in all cases, where nature departs from the common law, there is an end of the race. If, therefore, chess is a sport of nature, then it will follow incontrovertibly, that it never can reproduce itself. But this is contrary to all facts in the case. We know that chess is a kind of grass, perfect in its producing a seed which will readily vegetate, and produce a grass, identically of the same kind; and this, no doubt, it would do, if sown fifty years in succession. It has not the botannical properties of wheat. If chess is either a degenerate plant, or a *sport* of nature, we might suppose that, under certain circumstances, it would *sport back* again, and instead of chess, we might hope to reap a crop of wheat or some other grain; but no, this is not the case. It may be grazed, tramped, and badly frost-bitten, so that we might suppose that it would produce something *inferior* to chess; but no, it turns out to be chess still! If it be sown in good ground, cultivated with the utmost care, and everything being favorable to its improvement, whatever our expectations may be, it still turns out to be chess; and chess, no doubt, it will continue to be, in spite of all our efforts to the contrary!

If wheat forms an exception to every other plant, and will change its nature, turning itself into another *genus*, essentially different from itself, why is it that it does not, sometimes, at least, turn into something else? We never hear of it—even in its most sportive moods—turning into rye or barley, although they more nearly resemble it. Why should it discover such uniform partiality for this particular kind of grass? If chess bears any resemblance to wheat—if any traces of affinity can be discovered between them, so as to prove them as belonging to the same family, then we will give up the point.

We conclude, then, that chess is neither a *hybrid* nor a *lusus naturæ;* but a distinct plant or grass of its own kind, and is, in no sense, an offspring of wheat.

By the natural process of hybridization, we may, and often do, obtain new *varieties* of wheat, but never a new *genus*. Hence, we have the *bearded* and the *smooth-headed* wheat—the *early* and the *late*—the *red* and the *white*, etc., etc.

But it is often asked, If wheat never turns to chess, why is it that we so frequently find it amongst that grain? The same question may be asked with regard to cockle. This seems to be as peculiar to wheat as chess; yet no one believes it to be degenerate wheat. The same may be said of yellow seed amongst flax; it seems to be peculiar to that plant; yet no one believes it to be degenerate flax. The truth is, there are certain plants which grow and mature at the same time with others; of course, their seeds become mixed, and it is very difficult to separate them completely—they will be either amongst the grain, or in the soil, after our greatest care to get rid of them. We have known chess to come up spontaneously, in the same ground, for several years in succession, even when it was not permitted to mature its seed. This proves that it is a hardier plant than wheat, and much more retentive of life.

Some seeds have the power of resisting the influences of decomposition, and of retaining their vegetating principle much longer than others. This, no doubt, is owing to the quantity of essential oil contained in the seed. As long as this remains, the seed will vegetate; but when this is destroyed, its vitality is gone, and it will not grow. Some seeds, as the parsnip, carrot, etc., will seldom grow after the first year; while the melon, cotton, castor beans, etc., which abound in oil, will grow for many years, if properly excluded from the influences of air and moisture. It is not improbable that some seeds were so securely deposited in the earth by the flood, that their vitality remains, to this day, unimpaired; and nothing but favorable circumstances are wanting, to cause them to sprout and grow. It is in this way that we may account for the occasional appearance of new plants in different parts of our world. J. R. B.

ROSEMONT, near Nashville, Tenn., Jan., 1857.

It is undoubtedly true that every thing produces after its "kind;" but the word "kind," we think, should be taken as synonymous with species, not with genus. Instead of saying, as our correspondent has, "New varieties may be originated, but the kind will remain the same," or, as he repeats, "more botanically," "the species may be varied, but the genus remains the same under all circumstances," we would have said, *varieties may, and actually do occur, in the same species; but still the specific character remains unchanged.* The

term variety, we suppose, is always used to mark peculiarities, not of different, but of the same species; as the Durham, Devon, Hereford, and Alderney cattle; or the red, white, and Egyptian wheat. The former, we understand to be varieties of the same species of animals, and the latter of the same species of plants.

As to the much discussed question of our correspondent, we have no special claim to decide it *authoritatively;* and we will only say that, to us, he seems to have the truth on his side, and to have reasoned justly and forcibly. We believe that all living things, animal and vegetable, were created in "kinds," or species, that improvements and deteriorations are possible, and consequently varieties will spring up in all species; but that each species is destined to remain essentially the same; and that to secure this perpetuity of species, it has been provided that all hybrids shall be incompetent to perpetuate their mongrel nature, being doomed by the unalterable laws of an infinite, overruling mind, either to extinction, or to a return to one or the other of the species from which they sprung, the blood of that species to which they return more or less rapidly resuming its purity, and that of the other disappearing, after a short time in some cases, but longer in others.

With these views we never could believe that wheat will turn to chess. If it were possible, as we do not believe it is, for a hybrid plant, resembling chess, to be produced from wheat and some other plant, we should not expect it to retain its resemblance to chess; but either that its seed would not germinate, or, if it did, that it would return, perhaps gradually, but surely, to one or the other of the plants from which it sprang.

It seems to us that wheat will always be wheat, and chess always chess; that the one will never turn into the other, and that if possibly, either should be so hybridized, that the produce should resemble the other; no permanent, enduring change, would have been wrought.

N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CURE FOR THE GARGET.

MESSRS. EDITORS:—The last Spring, I had a valuable cow that was attacked with the garget, soon after calving. One of the hinder quarters of the bag was so caked and inflamed, that, though ordinarily gentle, she would kick at the touch of it. Finding the following recipe in an agricultural journal, attended with recommends from reliable sources, I was induced to try it, and the result was a perfect cure in a short time.

Take an ounce and a half of the hydriodate of potash, put it in a

glass bottle of sufficient capacity, with fifty-five tablespoonfuls of cold water. Shake it until dissolved, and give a tablespoonful three times a day, in shorts or Indian meal wet with water. HUBERT.

CLEAR YOUR APPLE TREES.

You may keep off the caterpillar, if you will; and it will cost you nothing to do it—nothing but what you will be paid for in dollars and cents as you go along, leaving the pleasure of seeing a clean orchard, and the reputation of being a tidy farmer, to be set down as so much clear profit; and certainly it is not small, if self-respect and the esteem of the neighborhood are worth having. You should keep a clean orchard for your own sake, and for the sake of your neighbors. It will be more for them to keep clear of pests if your orchard is a hot-bed for them.

Perhaps you say, your neighbors propagate the pests, and it is vain for you to attempt to keep your orchard much cleaner than theirs. There is something in this. You cannot drive them. Mankind are a little like the Irishman's pig—"won't be driven." But they are like that nobler animal, the horse, in another respect—"love to be led by the nose;" especially if they like the man that leads them. Suppose now, that you clean your own orchard, and then say to your neighbors, "Come on, let's have a clean neighborhood of orchards." "Come" is a softer word than "go." More are persuaded by it.

Yes, clear off the caterpillars. The time is from now as long as as you live, for the Giver of all good never meant that there should be a rose without a thorn; or good, fair, delicious fruit, without care and labor. If he had made the earth prolific of all good things, with no enemies in the shape of caterpillars, canker-worms, weevils, frost, drought, tempest, something to keep man awake, to burnish up his powers, to scrape off the rust, the human race would have been extinct long ago. In baffling, therefore, with the farmer's enemies, think that you are fulfilling one of Heaven's merciful appointments; and do the work cheerfully, hopefully. You'll conquer, if you *will* to conquer.

We have said the time is while you live. Rather discouraging. Not very. If you do the work well from January to August this year, there will be little to do next year, and less year after next, and so on. But how? is the question. Your agricultural papers will tell you a score of ways, all very good perhaps. The agricultural papers are about as good as they can be, till the readers will let us give them better. Farmers miss it, that they do not let us pour the light of science on them; give them hard words when necessary, pages

which it would take them a winter evening to conquer, but which they *could* conquer nevertheless, and become scientific men, but for the ridiculous idea that a farmer cannot learn much. The way would become easy, when once entered, just as the caterpillars are more easily kept down the second year than the first, and still more easily the third. But as the farmers will not come to us, we will go to them. Science is bound to bless the farmer. This is its benignant mission.

Science *should* be clothed in her own beautiful garb, and the farmer *should* learn to look upon her with the same pleasure as upon his neatly-clad wife and daughter. But in our practical recipe for expelling caterpillars, we will dress her in a less comely garb—will use no word that would be new to a child; not because this is the best way, but because the farmers, *mistakenly*, as we think, will have it so. Aye! we humor them at their own bidding, but to their own hurt. They are a little like spoilt children in this respect. The naughty schoolboy says, "It will do me no good to learn English grammar; what's the use of algebra for me? I care nothing about geography; I'm to be nothing but a farmer, or a mechanic." So, too, many farmers refuse to learn a few scientific terms, which would be the key to a flood of light on their business, and do more than a little to raise their calling and themselves to a high pinnacle of glory in the eyes of mankind. But let that go.

There are two batches of caterpillars that infest apple and other trees, which have a bitterish and tonic bark and leaf. The apple and the choke cherry, and the common black, or rum cherry, seem to be their favorites. Hence, if the farmer would keep his orchard clear of these pests, he must either cut down the wild cherries and cast them into the fire, or must consent to watch them with the same vigilance as his apple trees. If cherry trees are tall, it is more difficult even to keep them clean. We once had a large orchard with a single black cherry tree in it, tall, straight and beautiful, productive of abundant fruit, a feeding place for flights of birds, which we loved to see gathering there for their food. The tree had grown up spontaneously, and we could not but feel that God had given its fruit for the birds, and as they were willing to take the fruit in its simple God-given state, without adding fire-water, we suspected our right to cut it down. But tall ladders, long poles, and much climbing, were all in vain. It was next to impossible to keep that orchard clean. In spite of all vigilance, the caterpillars bred in the cherry top, made it look like a scarecrow, and came down in swarms upon the apple trees. It was more labor to keep a dozen trees in its vicinity clean, than all the rest of the orchard. We spared the cherry tree, nevertheless, and

the caterpillars and birds, under a less vigilant owner, divide its leaves and its fruit to this day.

The batch of caterpillars which comes out in April or May according to the latitude and season, seems to prefer the apple leaf to the cherry, and will do considerable mischief, though not very great, if let alone. Larger broods come off in June or July, and do their mischief in July or August. These seem to have a stronger liking for the black, or the choke cherry, but will do great mischief to the apple tree, if not headed off, or fought down. The eggs from which the apple tree caterpillars are produced, are deposited on a small twig, in August or September, in a ring extending quite round the shoot but a little protuberant on one side. Each egg is deposited in a separate cell, like the cells of a honey-comb; but, if possible, arranged with more exactness, and in more beautiful order. The whole are covered with a transparent water-proof cement, leaving the color so much like the natural color of the branch, that they are not easily discovered. A person might tend an orchard a life time without seeing one, if his attention was not specially called to it. These, if let alone, will remain till the warmth of spring hatches the young, when they burst the cement, and crawl downward to the first convenient offset of shoots, a little army, where they make their encampment, spin their thread, weave it into a sort of web, spread their white coat, and thus become so distinctly visible as to be a fair subject of attack; and if taken in time, it is no great trouble to eject them. The branch, if not large, as it seldom is, should be cut off and burnt. If the branch is large, or if you insist upon sparing the small branches, rub the encampment down with a leather glove, and the enemy is extinct.

The June or July broods may be treated in the same way. The work, in this case, should be a little more thoroughly done, because, at this season, the weather being milder and less subject to North-east storms, if you let a few stragglers escape, they will sometimes rebuild their tent, and continue their mischief; whereas, in May, if the nest is broken up, little harm need be anticipated from an occasional wanderer. The limbs, if high, may be cut by a long pair of pruning shears, or just as well by a sharp scythe affixed to a pole. But the limbs should in all cases be gathered and burnt. There has been much said about blowing these nests with powder. An active boy would destroy ten of them in the way we have named, sooner than he would load his gun. It has been recommended to burn them with a torch at the end of a long pole. If the torch light is hot enough to extinguish the insects, it would do the limb no good. Washes of vinegar and pepper, of salt and water, of lime, of soap-suds, and, we believe, of cheap rum—which certainly would kill if any thing would; at least

does kill—have been recommended. Those who want to increase the labor of extermination, would do well to try them.

But prevention is always better than cure; and we will now propose a plan in which we should put the greatest reliance, and will suggest a method of carrying it out most effectually. Those deposits of eggs, of which we have spoken, are hard to be seen. But a keen eye will detect them; and the best time is in the winter; and if the ground is covered with snow, so much the better, because it reflects the light advantageously. Go through the orchard on a clear sunny day; and with your back towards the sun, look for a slight enlargement of the twigs, a swell in those from the size of your little finger down to that of a pipe stem. If you notice one, examine it with a microscope. A glass from grandmother's spectacles will do if you have no better. If you observe something of the appearance of a honey-comb, you may calculate that you have a host of embroyonic enemies in your power. Note the appearance carefully, and you will detect another tribe more easily. But this is the best work for the boys. Their eyes are better. Let them cut off and burn these enemies, while yet in the egg. But will the boys do it? Yes, if you will inspire them with a motive. We do not much like the idea of *hiring* boys to work for their parents. And yet, why may not a boy have the opportunity to earn something for himself, while other boys play? There can be no harm in it, if he will at the same time learn to value money and to spend it wisely. You may have two or three sharp-eyed boys from ten to sixteen years old. We propose that you show them a half-eagle. Explain its value. Tell them you will hold it for them, subject to their drafts for such little expenses as you approve of their making, on the condition that they will break up all the caterpillars' nests before spring, or that if any should escape their search, they will destroy the young before you find them; the money all to be theirs with interest, if they succeed perfectly; but you to deduct a shilling for every nest not destroyed in the winter, or broken up before it meets your eye in the spring or summer.

We fancy, that by such an arrangement, the boys would learn something useful to them in after life, and that the caterpillars would learn not to trouble your premises. N.

To kill Insects on Fruit trees.—M. Tessler has sent a communication to The Imperial Horticultural Society of Paris, stating that the ammoniacal water of gas-works will destroy the insects which are so destructive to our fruits. In the neighborhood of cities, this is worth trial. The water of the gas-works should be diluted with three-fourths its own quantity, and sprinkled over the leaves and branches. Trench-

es should be dug in proper directions to receive the water as it falls, and this will destroy the insects below the surface of the ground.

P.

WATER RODS—POTATO ROT—REMEDY.

A CORRESPONDENT from Deep River, Conn., with whom we once had a good-natured controversy about the finding of underground springs by means of water rods in the hands of certain nervous persons, assures us that "he still holds fast to the utility of it." He says: "It is practised with great success here, and we have men who can show where subterranean springs can be found."

Now we do not much wonder that he believes this, for we have ourselves seen at least a score of instances, in which the water hunter pointed out the very spot where water was subsequently found; and in none of all the cases coming under our own observation has there been a failure. This would tend, certainly, to create a belief of an ability in the water-rod-men to do what they profess to be able to do—to point out the place of underground springs. But then there is a difficulty; we want to see a reason for the rods bending towards a spring—some connection between the running water and the bending of the rods; and as yet we can see none.

Let us see twenty instances in which guano has made the wheat grow, and not one in which it has failed, and we shall of necessity believe in the efficacy of guano. But here is a reason—a connection between the application and the result. If we were told of twenty cases in which 200 lbs. of beach sand had increased the wheat crop, and that it had not been known to fail in any case, it would be very different. We could see no connection between the application and the increased crop. We should doubt our neighbors' testimony, could hardly believe our own eyes, should think there must be some mistake.

Very much so we feel about the water rods. We have seen them work in many persons' hands—have seen what others, as sound thinkers perhaps, as ourselves, have regarded as conclusive evidence in the matter; in short, have seen enough to establish any reasonable proposition, but have as yet withheld belief, because we can see no connection between the water and the action of the rods. Much is said about electricity; but we know no law of electricity which throws the least light on the subject; and we have generally found that those, who in attempting to explain this and other phenomena, say most of electricity, know least of it; and their explanations, like those relating to spirit knockings and table tippings, only make the whole thing more inexplicable.

This same correspondent says that forty years ago, he put four

hundred bushels of ashes on four acres of land, and that no potatoes since grown on that land have rotted. Thirty bushels to the acre, he thinks, would have done as well for awhile, but the effect would not have been as lasting. On six rods, in the same field, no ashes were put, and there the potatoes have rotted badly, and do still; while all the rest of the four acres still give sound potatoes. He says: "I have learned of many instances of ashes preventing the potato rot;" and then adds: "few persons know the importance of returning to the soil what they have taken away." We should have mentioned that bone dust, in the form of clippings and parings from a comb factory, were applied 40 years ago to that same four acre field. The writer philosophizes on the durability of the effect thus:

"There are certain parts of ashes called insoluble, which will be years in dissolving, according to management and circumstances. A neighbor of mine denounced ashes as worthless on his farm. He let a large piece to his brother to plant. The brother put a handful of ashes on the hills of one-half, planted with corn. No kind of difference did it make the first year. The next year it was sown with oats; and one might stand on the fence, and see where every hill of corn had stood by the tall green spots the ashes made. No other manure was applied to either crop. Bone dust, if it does not dissolve at first, will operate the same way, and its effects will be slow but lasting."

That ashes are favorable to the potato crop, both in promoting a healthy growth, and in preserving the tubers in a sound state, we have not the least doubt; and if there was any one thing which we could recommend as a grand specific against the rot, it would be ashes. The fact that the New-Jersey green sand marl is so very favorable to this crop, goes far to establish this view, since potash is one of its prominent ingredients.

What our correspondent says of bone dust—that it is slowly soluble, and consequently slow, but lasting in its effects, is true. You will get as much return in a lifetime from bone dust in its natural state, as if it were manufactured into a superphosphate. But as no man wishes to wait a lifetime for a return from his labor and capital, it is the best policy to convert the bones into a soluble superphosphate, provided a fair, just division of profits can be had between the manufacturer and the consumer of the article.

Where a few bones, not enough to make it an object to manufacture them in a more scientific way, are found about a farm, they should either be calcined by heat, or decomposed in a fermenting muck heap, or pounded into small fragments, and worked into the soil, on the ground that a slow return is better than none at all.

Finely broken bones, and it is no hard matter to break them if first

boiled in strong ley, are excellent for fruit trees. They should be dug into the soil about the roots. If worked into the soil of cultivated lands, or even spread upon pastures, they will give a sure, though a slow return.

We believe we have before stated, that in Cheshire, Eng., pasture lands are now renting for nearly double of other lands, equally good naturally, solely from the effect of heavy dressings of coarsely broken bones, applied more than a quarter of a century ago. N.

AN ERROR—CORN PLANTING.

It is a mistake that some agricultural journals are making, to recommend early planting indiscriminately, and without noting the exceptions.

The farmer of course will think for himself; will use his agricultural paper to suggest thoughts and plans for his own acceptance or rejection, and not as an oracle by which he is to be led captive at another's will.

Hence wrong advice is not in all cases very harmful. We verily believe that the worst agricultural paper that could be concocted, would do some good—would be worth more, in the absence of better journals than its cost—because it would lead to thought, would sharpen the farmer's powers of observation and reflection.

Still wrong advice may prove injurious to some. The young, inexperienced farmer might be misled. Take, as an instance, the indiscriminate recommendation to plant early. It is good advice, so far as it is sound. The oats will be heavier if the seed is sown about as soon as Jack-frost lets go his hold of the ground; potatoes, taking a succession of years, oftener do well with early than late planting; winter wheat is on the whole more likely to escape its enemies and mature heavily, with early than with late sowing. It is so with crops generally; and then the enterprising farmer loves to see his work done in good time—would rather drive his work than be driven by it.

But how is it with Indian Corn? Does the earliest planting always give the best crop? No. Planting at the right time gives the best result. And when is the right time? It is important to know, for when that time comes, not a moment is to be lost. Corn is a tropical plant; it loves a great deal of heat and but a moderate degree of moisture; it will flourish only in tropical countries, or those which have the summer of tropical climates. Under favorable circumstances, it grows rapidly. Three months will carry it from germination beyond the danger of injury by frost, provided the weather be warm and not over wet. Without these favoring circumstances, it "gets contrary," so to speak, and won't grow. These are essential to

its tropical nature. There is hardly a more important problem for the corn-grower, than to hit upon the time for planting, when the seed will come in three or four days, and then grow "right on" without stopping.

Wheat, rye, oats, almost anything else, will wait for growing weather, without injury to the final result. Not so with corn. The farmer must give it the three hottest months in our climate, so nearly as his judgment will enable him.

The true advice with regard to this crop is, not to plant early; but as soon as the ground is warm and there is a reasonable hope of its continuing so, not to lose a moment. N.

TOO MUCH LAND.

On pages 416–17 you very properly remark that some farmers have too much land when owning a few acres, whilst others have none too much though they may own by the thousand. This is no less true in the cotton region than in grain or grass districts. It can be shown to be true even on the best cotton lands in the South—the Valley of the Mississippi.

Two causes operate to produce this;—the one, due to indolence—putting off, too cold or too wet, too hot or too dry; a hunt or a fishing to be done; an election on hand, a visit to or from a neighbor—anything but close attention and diligence in business. The other, a morbid appetite, craving too much—putting in too much land, or not providing a good team or good tools.

There are cotton planters with one to five thousand acres in cotton, who manage such an estate to better advantage than other men do a ten or twenty acre field. There was an instance a few years since where a fence divided the properties. One man, a young Kentuckian, had some ten acres of cotton to the hand; he attended to his business, and gathered, with some help, *sixteen bales* per hand. The other, some "sand hill" genius, who had time to hunt and fish, and sit about the house when the sun shone *hot*. He could not work over six acres, and made *about four bales*. He worked himself sometimes. Yet another instance; a young man born in England, energetic and thorough-going, with only one negro to help him, made over one hundred bushels per acre, and his neighbor, with quite a number, made some twenty to thirty bushels—a fence dividing fields. The first had green blades to the earth, the other "fired to the ear;" seasons made the difference of course!

Much has been written about large farms, too much land in cultivation, and much nonsense—in my humble opinion. I have seen poor farmers who cultivated little land, and poor farmers who cultivated

largely, and *vice versa.* Give me an attentive, energetic, industrious man, and give him experience, and I will insure him to make a better per acre yield than the "poke-easy" one who cultivates about half the acres per hand.

The man to succeed must be devoted to his calling. Why, sirs, i it not true of the doctor, or lawyer, or mechanic? And why not so of the farmer? I cannot advocate the farmer's claim to success, as earnestly as I would wish, and it is his own fault. He does not regard his profession as does the doctor or others. Who would employ a doctor or a lawyer if found anywhere save in his office? Why should this not hold with the farmer? The merchant has his clerk, the mechanic has his journeyman, the lawyer may have his clerk, or even a doctor his office clerk, yet each one deems it a duty to give strict attention to his business, and strive to at least keep up with his calling. Yet the farmer, with far more varied interest, and a far greater knowledge to acquire, can leave his interests to an irresponsible agent. It is a mockery, a solemn farce, to thus dare to carry on business. I have been asked, "Why do you not employ an overseer, you are out on the farm all the time?" My answer was, to attend to a detail, that I care not to do, or to see that the detail of a plantation is observed. Employ a stranger to my interests and expect him to feel the same interest that I do! It is a farce.

When farmers will attend closely to business, provide a proper team and proper implements, they will see that "too much land" is far too indefinite a phrase. That it is cheaper to get a full and fair return from ten acres than a half return from twenty acres, is admitted; it is better to dispose of labor so as to make the full return from ten, even if manures should be used; yet what would be "too much land" for one, would be "child's-play" for another.

Yours, P. P.

That's so. If a farmer is not energetic, contriving always, working when necessary, a real business man, a little land is too much; if he is, give him room. We would cut the land to the man, much as the tailor would his cloth.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE STUMP PULLER.

MESSRS. EDITORS:—Knowing your interest in the progress of every good invention designed to help the farmer, we take the liberty to state that in Western New-York, Willis, famous as a stump puller, has made some commotion among stumps in that region. Large trees, we are told, deeply rooted, covered with a foot or more of frost, tops, body, roots and all, have been uprooted by Willis' Improved Machine,

as by a hurricane. Success, we say, to this pioneer stump puller! He deserves it, and judging from what we saw at his manufactory at Orange, Mass., a few days since, we infer that he has it. The workmen informed us that they were forging out between thirty and forty, in one lot, for some foreign markets. The remark is old and threadbare, "he who makes two spears of grass to grow where but one grew before is a benefactor." Willis is doing this on no small scale. He is making the rough places smooth; he is doing a good work, and is a Reformer in his way. PROGRESS.

CLOVER AND TIMOTHY.

RANDOLPH, N. Y., Jan. 20th, 1857.

MESSRS. EDITORS:—I have read with no little interest the remarks in notes of Western Travel, and the communications of your correspondent, W. Tappan, so far as they relate to seeding to clover and timothy, their relative values, and the proper time of cutting them for hay.

The subject of grasses, and their cultivation, is of more than ordinary importance to the farmer of the "Southern Tier" of counties, and should be more freely discussed by the intelligent and practical farmers who are deriving their greatest income from the products of the dairy, and the supply of the shambles.

The little experience I have had, and my opportunity for observation, have satisfied me that neither clover or timothy should be grown alone, except it be for the seed. That the best meadows and pastures should not only include them both, as the two most valuable grasses we grow, but should include other varieties, of which the late Red Top (Agrostis vulgaris) should be one. The habits and growth of these grasses are very dissimilar, and the growing of them together improves the quality of each. I do not fix a very high value to thrifty, coarse clover, for hay, and certainly the same quality of timothy, cut at the proper time for cutting, makes but an indifferent quality of hay. The best hay for general feeding, to all kinds of stock, in my estimation, would be a mixture of "medium" red clover, timothy, and red top, grown on rich, well cultivated, meadow land, from a liberal (may I say *heavy*) seeding of their kinds. The red top, soon after seeding, forms a close, velvety sod, completely *covering the ground*, making of itself, a fine quality of hay, highly relished by all kinds of stock, and pasture not excelled by any other grass. Clover, it is well known, grows in stools, or single heads, from a long, carrot-shaped root; whilst timothy is also produced in stools, or heads, from one or more bulbs. The spaces between these stools, or heads of clover or timothy, and which are often a greater portion

of the surface, are naked, and of course exposed to the drying effects of the winds and scorching sun, until, after years, white clover and June grass, have gradually crept in and formed a sod. These spaces, whilst thus exposed, are subjected to the action of the frost, and after the first winter, your correspondent would not only find his clover-roots upon the surface, but would find them well mixed with the bulbs of the *Phleum Pratense.* The red top sends out numerous long, slender, creeping roots, throwing up a multitude of long, slender stalks, extending and multiplying itself, until the whole surface of the ground is interwoven with a net-work of fibrous roots, and covered and completely shaded with a vigorous growth of most tender and delicious herbage; and which also favors the production of a finer growth and more tender quality, both of clover and timothy. The red top soon forms a most perfect shield against the drying and scorching effects of the winds and sun in the summer, and a protection against the heaving of the frosts in winter; a fine mulching, enriching the ground by its shade and moisture, improving the quality, and increasing the quantity of the product; affording all the advantages of *covering* claimed by Gurneyism, and forming a *permanent meadow* in the place of one that would soon *run out.*

Your views, Mr. Editor, in regard to the proper time to cut grass for hay, perfectly coincide with mine. I have cut grass when just coming into blossom, and in all its stages of growth, until it became quite ripe, and the seeds even, mostly shelled off. I now cut as nearly as I can, when the grass has just passed out of blossom, and the seed not fully perfected. My stock thrive better on it then, and seem to relish it better than when cut earlier, or later. I used to cut some quite early, and cure carefully, to feed to colts, calves, and such stock as I wished to give an extra care. I have abandoned that, after finding that they kept better, and had a higher relish for bright hay, cut and cured carefully at, or near, maturity. I am also well satisfied that many meadows of timothy grass are irrecoverably ruined by cutting too close, and too early, before the bulbs have sufficiently matured.

I differ with your correspondent respecting the quality of Western timothy seed. From what I have seen of cultivated prairie lands, I can hardly be satisfied that a purer or cleaner quality of seed can be produced. The cultivation of their fields of corn is not so much for the purpose of destroying noxious weeds, as to stir and freshen the soil. Our best seed here, is from the West, forwarded from reliable sources, and is pure. We have no fears of daisies or Canada thistles, or any other of the pests of the farm, that are frequently introduced to our acquaintance in some such way.

Yours respectfully, SPENCER SCUDDER.

EXPERIENCE WITH MICE IN ORCHARDS.

A CORRESPONDENT of the *N. Y. Times* anxiously inquires as to how mice may be prevented from destroying young fruit trees. Having had some experience on that subject, I propose to communicate it through your paper, for the benefit of your readers, as well as for those of the *Times*. I desire to be brief, but you must excuse a short preface. My father had a large orchard of well-selected fruit, which had been managed with great care, and was very productive. Between the time of his death and that when I came into possession of it, about eight years—the farm having been rented out—the orchard, whether from mismanagement, or other causes, had begun to decline. Having no experience on the subject, I took the advice of my neighbors, and had the orchard ploughed; the effect of which was, that in about two or three years, almost every tree died. As the orchard had not been ploughed for many years before, the roots had approached the surface, and my ploughing cut them off and killed the trees. I had the dead trees removed, and determined to plant another in the same place, as most convenient for the purpose. In the meantime the ground was thoroughly cultivated and manured. The young trees grew tolerably well, but not quite so thriftily as I could have wished, nor as they probably would have done in another place. By the advice of my neighbors more experienced than myself, I mulched the trees copiously with green clover that was mown on the ground, and left it there during the following winter. The mulching furnished a fine harbor for mice, which they took possession of, and before spring girdled all my trees. This was my first experiment in raising an orchard. I then planted another, which I nursed for several years, taking great care not to place the mulching near the body of the tree, nor to leave it till late in the fall, carefully watching the action of the mice. In the meantime, I planted a Pericantha hedge along one side of my orchard, which grew luxuriantly, and in a few years furnished a shelter and a harbor for mice, which neither dogs or cats, owls or crows, could penetrate. The mice, thus protected, multiplied in numbers incredible. An adjoining field was so overrun with them that one or more could be seen at every few paces in walking across it. They committed such destruction upon the grass, that I became alarmed at the prospect of an incurable nuisance. The hawks came, and the crows came, and cats and dogs were introduced among them; but the mice found shelter under my beautiful hedge, and we could make but little impression upon them. Apprehending the destruction of my young orchard, I watched it closely; and one morning, in the month of October, I observed that almost every tree was slightly nibbled, and so recently done, that it

must have occurred towards morning in the preceding night. I at first concluded that my orchard was doomed to destruction; but without consulting my neighbors, determined upon an effort to save it; and had several gallons of tar boiled down into pitch, and with a little swab, while warm, I pitched the foot stalks of my trees from the root, some nine or ten inches above it, having first removed the sod and grass around the body of the tree. The whole of my trees were served in this way during the day, and were carefully watched. For years afterwards, I never found the mark of another mouse tooth upon them. The same application was made to a number of peach trees on one side of the orchard, which effectually protected them not only from the mice, but from their fatal enemy, the peach worm. I have since applied to peach trees, common tar, merely warm enough to be put on with a brush; and have known gas tar to be applied in the same way to peach trees, but neither answered the purpose; they disappear before the next season, and the worm goes to work as usual. I conclude, therefore, that a coat of pitch is indispensible, which, expanding with the growth of the trees, will protect them for several years. It may be well to mention, however, that in addition to this work, I destroyed my pericantha hedge; and an open, wet winter greatly reduced my stock of mice, which have never given me much trouble since. I also issued a very positive order not to shoot hawks, crows, owls, nor to kill the garter or black snakes.

S. D. Ingram.

Trenton, N. J.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE FARMER AND THE CIVILIAN.

Messrs Editors:—Our community may be described as being composed of two prominent leading classes, viz., Farmers and Civilians. Others may be regarded as subsidiary to one or the other of these. Professional mechanics fall into the former, and professional teachers into the latter. So it was under the Mosaic system, when a particular people were selected to become a model for regularity and economy in public social management, that the duties of all might be definitely and distinctly understood, and the welfare of all be most effectually promoted.

The country, meted out to them as an inheritance from the great Proprietor of all things, "who is the Giver of every good and perfect gift," was put into the hands of eleven parts of the nation, by them to be used for agricultural purposes, that food and raiment, and whatever conduces to bodily comfort, might be produced sufficient for the necessities of all. To the other constituent portion of the

people was assigned the department of public instruction and government, with a remuneration for their services enough to place them on a level with their brethren, the laborers and producers of the general wealth. So long as fidelity and correctness were upheld and preserved from corruption, in each department, national prosperity, vigor, and security were the fruits. But when fundamental principles were changed, and sense of duty became stagnant, ruin ensued. The whole head became sick, and the whole heart faint. Health and soundness could not be retained in limbs having a vital connection with others infected with disease. The contagion, which had entered at any one inlet, did not long fail of diffusing itself through the whole mass, and universal putridity and dissolution ensued. Hence, the following prophetic moan is left on record for the admonition of all who are willing to be instructed by it. "A wonderful and horrible thing is committed in the land. The prophets prophesy falsely, and the priests bear rule by their means; and my people love to have it so; and what will ye do in the end thereof?"

Now, in what sense can we be interested in, and profited by, such a piece of ancient history? I propose to apply it in this way: make it an exhortation and a motive to the agricultural community, including all forms of industry, to look well to themselves, that by no fault of theirs, in neglecting or discarding right moral principles in the exercise of their appropriate function, the performance of what belongs to their calling, will they contribute to the downfall, or even to the dishonor or weakening of the political body, in which their standing is of so much importance. The meaning is, that they will not, by imitating such an example, give countenance to any unprincipled arts of intrigue and finesse to compass private ends, such as are laid to the charge of men who procure themselves to become rulers, not for the public good, but for their own personal emolument. It would be a foolish affectation and squeamishness, to seem incredulous of the fact that most legislation and administration of law, in our country, and not in ours only, takes place without the least reference to what is the known will of God in the matter. Though it is admitted, as the apostle affirms, that "there is no power but of God;" and that rulers are his appointed ministers, whose true office it is to secure obedience to the divine law; yet the potentates of the earth, with few exceptions, finding themselves in power, adopt no standard and rule but such as their own policy dictates, regardless of the precepts and sanctions of Him who hath said: "Vengence is mine; I will repay saith the Lord." Shall this treachery to the world's Ruler and Benefactor be imitated by men who soberly set themselves to watch and profit by the laws which an Almighty Creator has impressed on the elements, which he has subjected to the use of man, with this injunc-

tion: "Be fruitful, and multiply and replenish the earth, and *subdue* it." And how subdue it? By a wise and judicious culture, "that it may bring forth abundantly seed for the sower, and bread for the eater." Can this be any other than a religious act, performed as it should be in obedience to Him, from whose lips the commandment came, and to whose honor the strict observance of it will redound? Let then the laboring, the producing classes, by their virtues, their just appreciation of their rank, their conscientious performance of what devolves on them, both invite and stimulate their brethren, the civilians, to vie with them in the laudable strife of being first in paying homage to him whose is the earth, and the fullness thereof. Need it be argued that moral virtue is of primary value in augumenting the usefulness of industrial occupations, in political action and economy also, excluding none of the arts of secular life? Let him who doubts, resort to such practical trials and experiments as are adapted to the case; and then let him make known the result.

J. F.

ON INSECTS—

With Descriptions and Directions useful to the Farmer, Gardener, etc.

INSECTS INJURIOUS TO THE BARK AND TWIGS OF TREES AND SHRUBS.

HAVING exhibited the more destructive species of insects which destroy our fruit trees by boring into the wood, we now turn to another class, whose name is legion, which injure the bark, and thereby destroy both tree and fruit. They all are Hemipterous, and are included in the name

COCCIDÆ, OR BARK LICE.—But there are many species which are exceedingly destructive, and each has its favorite tree and shrub, and differs entirely in organism, etc., from others. We begin with the

APPLE-BARK LOUSE.—This is a small, oblong, brown, scale-like animal, about one tenth of an inch in length, somewhat resembling an oyster shell in form, which adheres to the smooth bark. When examined in the winter or early spring, they will be found to conceal a large number (often thirty or forty or more) of small, round, whitish eggs. These insects are, oftentimes, very numerous. They infest orchards through the Northern and Western States, and must prevail in greater or less numbers, in all the States where apples are extensively cultivated. Sometimes, limbs appear to be almost covered by them; and when trees are thus invaded for a succession of years, they wither and die.

These insects are hatched from the egg in the last days of May, and onward to about the 10th of June. When first hatched, they are nearly of the form and shape of the egg. In about ten days they be-

come stationary, throw out a quantity of blueish-white down, and soon after complete their transformations and deposit eggs. These are hatched during the summer, and the young come to their growth before the end of the warm season. This species is the *Aspidiotus conchiformis* of Gmelin, and the *Coccus arborum linearis* of Geoffroy and others. Several other species, of the same general appearance and habits, are found on apple trees, and pear trees, and on grape vines. Dr. Harris describes one, of which the body of the female is not large enough to cover her eggs, and a protection for them is furnished by a kind of membraneous shell of the color and consistence, almost, of paper.

These insects appear to the eye like dark-colored spots upon the bark, and they are often seen when no suspicion is entertained that they possess or conceal animal life. How many species there are of the general appearance above described, is rather a question of science for the naturalist than one of practical importance to the fruit grower. Different names may be given to the same insect, or the species may be more numerous than is generally supposed; but the same treatment is required for all, except as stated below, and the same means are to be used as preventives to their production or increase. We therefore proceed to specify

The Means of Prevention and Destruction of this kind of insect upon our trees. Among the many applications which are recommended, washing with a decoction or infusion of tobacco or of lye, smearing the trees with whitewash, or dry ashes, or a wash of very strong soap-suds, are more or less efficient in the destruction of these insects. A preparation made of two parts of soft-soap and eight parts of water, with lime enough to reduce it to the consistence of a thick whitewash, is commended by Dr. Harris and others. The application should be made to the trunk and limbs as extensively as is practicable, filling all the cracks and interstices in the bark. This service should be performed in June, or when the buds put forth. The insects are then "young and tender." A Western gentleman of great practical experience, commends the following: Boil leaf tobacco till it is reduced to an impalpable pulp, mix with soft-soap so as to produce the consistence of a thin paint, and apply it with a paint brush to the trunk and branches, and to the twigs even, as thoroughly as possible. This is said to be more lasting in its effects than the other preparations named. Such service should be done when the buds begin to burst.

Seventeen Year Locusts. Cicada Septemdecem.—This insect, "a very large black fly, with four glassy wings with orange colored ribs, and red eyes," (Fitch) was fully described in our issue for November, 1855, pages 205 and 268 of Vol. viii.

HOT-HOUSE PLANTS

are often seriously injured by insects which destroy the plant by preying upon the bark and leaves. Among these, we name from Kollar the following:

Orange Scale Insect. Coccus Hesperidum.—This insect appears like an elliptical nut-brown shield, and is plentiful on green house plants, paricularly on orange trees, where it fastens itself on the branches and leaves, particularly when the trees are kept rather warm. It is best destroyed by washing the branches and leaves. If done in autumn, it is of great advantage, as the old ones cannot creep up again.

Pine-Apple Scale Insect. Coccus Bromeliæ (Bouché).—A gray, elliptical, rather elevated shield, mottled with brown, very much like the former. It lives on the Pine-apple, Justicia, Hibiscus, etc. It propagates through the year. The young ones, when brushed off, ascend the plants again. Scrape off the insect from the pine-apple with the thumb.

Mealy Bug. Coccus Admidum (Lin.)—This is not shield shape. It resembles the woodlouse, is reddish and strewed with white dust. At the sides of the twelve segments of the body it is provided with small tubercles. The male is slender and gnat-like, with two rather broad wings and two long brush-shaped tail filaments. It attacks such plants as the Coffee tree, Justicia, Ruellia, Cestrum, etc., and is found plentifully on the Musa, Canna, Renealmia, etc. Brush them off carefully with brushes, at a distance from the hot house, or carefully kill them; but they must not be crushed, as their juice injures the leaves.

The Oleander Scale Insect. Aspidiotus Nerei, (Bouché).—The female appears as a yellowish, round, flat shield, almost destitute of limbs, which sucks plants with its rostrum. The shield of the male larva is smaller than that of the former. Its color is white. The perfect male is brownish yellow dusted with white, and white wings. Length one third of a line. It lives in amazing numbers on different kinds of plants, both of the stove and greenhouse, particularly on oleanders, acacias, aloes, palms, etc., and can only be destroyed by careful brushing. It is a native of America.

The Rose Scale. Aspidiotus Rosæ, (Bouché).—The female is like that of the former species. The male pupa is linear, doubly furrowed on the back. The perfect male is pale red dusted with white, and with white wings. Its length is one third of a line. It lives on stems and old twigs of rose trees, which are often entirely covered with them, and look mouldy. Brush them off with strong brushes before the rose trees sprout. They are very injurious.

Cactus Scale. Aspidiotus Echinocacti, (Bouché.)—The females are like the oleander scale, but more oblong, and darker. The male is an orange yellow; pupa linear, doubly furrowed, powdery, gray. It is a native of Mexico.

Rose Moth, Tinea (Ornix) *Rhodophagella*, (Kollar).—In early spring, as the rose trees begin to bud, an enemy, very dangerous to its leaves and blossoms—often overlooked from its smallness and the peculiarity of its shape—appears in the form of a little brownish scale, attached to the leaf shoots, within which is concealed a worm, the larva of a small moth, which gnaws the tender shoots. It removes from one to another, and one can strip a whole branch of its shoots. It is yellow, with a black head and black spotted collar. The moth appears at the end of May. It is three lines long. It carries its wings very close to its body, almost wrapt round it. The whole body is shining silvery gray. Its upper wings are strewed with minute black dots, deeply fringed at the posterior edge; under wings narrow, pointed with very long fringes. This moth lays her eggs in May in the buds of roses, and are hatched at the end of June.

Verbenas are infested by the *root louse*, and by a small worm that encloses itself in the truss, eating out the undeveloped umbels. Mr. Snow says he has "found no better way of destroying them than by picking off the bud or truss as soon as discovered, and before they have spread over the whole bed." For the root louse, apply a coating of wood-ashes—the fall is the best time—and spade the ground deeply in the spring. Guano-water is offensive to insects, and this, or guano scattered near the stem of the plant, will often rout the lice from the plant.

Parlor plants in general may be freed from these insects by the fumes of tobacco. Burn the tobacco on coals, underneath the plant, carefully exposing each part of it in the smoke, or a cloth may be spread over the entire plant so as to confine the smoke among the twigs. Continue the process for fifteen minutes. P.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

NATIVE CATTLE.

ESSEX CO., MASS., Feb. 11th, 1857.

FRIEND NASH:—Have we in New-England any *native cattle?* I know of no one whose opportunities for observation have been more favorable than yours to enable him to answer this question with propriety.[1] Will you say the question is not a proper one to be put? If you do say this, I must beg leave to demur to this assertion.

Within the last two weeks I have been present at two meetings of

the Legislative farmers of Massachusetts, at the State-House in Boston, where I have heard it positively asserted that there is no such thing as a *native breed of cattle* among us; and some go so far as to say there is no such thing as *native cattle* among us, leaving out the term *breeds*. I presume both intend the same thing, although when hard pressed, those who use the term breed, have more plausibility in their statements, using the term breed as indicating animals that can beget or produce their like.

Last evening a prominent farmer from Sutton, Worcester county, said the animals that have been reared in that town for the last thirty years, and which have drawn so many premiums, and have acquired so much reputation for their beauty, energy and activity, are *natives*, and nothing else; and that he came in expressly to vindicate their character as such; that he had reared many of them, and so had his father and grandfather before. I was delighted to hear this, for you know I am a full-blooded Yankee, and am always pleased when the excellence of New-England cattle, or energy of New-England men, is presented in a favorable point of view. But then the gentleman nearly spoilt his testimony before he closed, by the coarse and harsh epithets that he applied to the Durhams, saying that he would not accept the best herd of them he ever saw, to be under obligations to keep them on his farm.(2)

Another gentleman, from Franklin county, who professed to have much skill in breeding, was equally denunciatory of the natives. Comparing the assertions of both these gentlemen, and several others who were present, who professed to give their *experiences*, it would be exceedingly difficult to come to any conclusion in the matter.

The further consideration of the subject is deferred for *one fortnight*, when I hope, if nothing moves, I may be instructed by you what to say. I was in such a maze last night, I said nothing, though I was taught forty years ago by my old master, PICKERING, to believe that the *native cattle* of New-England were the best ground of hope for *improved stock* on our farms; and such is my confidence in his wisdom, that I do not like to abandon the idea, certainly not until good reasons are shown for so doing.(3) J. W. P.

1. The question whether we have native cattle, is little else than a play upon words, hardly worth the time of grave legislators. It seems to have arisen from a confusion of terms. Politically, we should be willing that all men, born in this country, should be considered as Americans, wherever their ancestors came from. By the same rule, all animals, born here, are natives, whencesoever their progenitors were brought here. Indigenous—*produced naturally in the country*—they are not; but native—*born in the country*—they are, in the only

sense, in which that word ought ever to be used; and this is true of all our cattle, except a few recently imported.

2. If the gentleman from Sutton meant to condemn Durhams for all countries, or for all parts of our own country, he must have been wise overmuch; but if he only meant that he, *in that climate, on that soil, by his mode of farming*, could buy, and milk, work, or fatten, and sell, the common cattle of that neighborhood, so as to do better than to accept a fine herd of Durhams with the obligation to keep himself supplied with such for a long series of years, we certainly should not despair of his being able to get through life without help from any of those beautiful institutions for charity with which his State abounds. Durhams are not the best cattle for that region; and he, if he is the man whom we suspect him to be, is the very one to know it.

3. Whether Mr. Pickering's views were correct, or whether we have any such thing as a *native breed* of cattle; that is, a variety, a family, so long and so judiciously bred together that the bad qualities are bred out, that the good qualities have become fixed, and that they may reasonably be expected, with good keeping and judicious pairing, to be transmitted from parents to progeny for ages to come, is more than we know. That it is possible to obtain about such qualities as you please, and that these qualities may be transmitted with all but absolute certainty, so long as the best keeping, kind care, and sound judgment are employed, the experience of English breeders has shown. We rejoice in all efforts to perpetuate in this country the qualities which have become established there. Men of wealth and leisure, and especially those who love notoriety, can afford to import the finest animals, without regard to price; and they will benefit the country by doing it; for whether their stock turns out, in the long run, better than stock bred and reared with equal care from the common cattle of the country, or not, they will have created a just appreciation of fine stock, and they will at least have convinced their countrymen that plenty of suitable feed, constant care, and the exercise of sound judgment in selecting breeders and in pairing them, are necessary in order to keep up a good stock, whatever be its source.

As to whether the mass of farmers—those who farm for a living, not to get rid of too much money—should go into fabulous prices, paying $500 for a cow, instead of buying two or three for $100, we cannot do better, in the way of advice, than to relate the words of a practical farmer in the valley of Aylesbury, Buckinghamshire, England. His pasture was exceedingly fertile. Buying cattle from the hills of Wales and Scotland, keeping them till fat, and then turning them over to the butcher, was his business. In answer to the question what breeds he preferred, he said, "I care nothing about the

breeds; I want those that I can make money on; I have been in this business a long time; there is something about a beast by which I can judge whether he will do well; I sometimes misjudge, but generally hit about right; and if I find one that will be pretty sure to be worth a good deal more, after being in this pasture a few weeks, than is asked for him, I buy him; that's all. N.

PLANTS MUST HAVE FOOD.

VEGETATION annually appropriates to itself, and removes from the soil, a portion of the nutritive principles therein contained, and if they be removed without compensation in some way, barrenness will ensue.

Upon the facilities which the farmer may be able to command to secure an adequate supply of food for his crops, his success must in a great measure depend.

Manure is a term of broad application. It was formerly confined chiefly to the excrements of animals, but now has a wider signification, and may be understood as embracing any animal, vegetable, or mineral matter, capable of improving and fertilizing the soil, or of correcting its faults and supplying its defects. Whether artificial fertilizers may or may not be profitably employed, is of far less moment for us to understand, than how to make the most of home resources; the true policy being to increase the productiveness of the farm from within itself. To accomplish this, every source of fertilizing material upon the farm should be made to contribute, and care should be taken that nothing be wasted. Not only should the solid excrements of animals, which too often is the sole dependence of the farmer, be properly cared for, but special efforts should be directed to the liquid also, which are not only more exposed to waste, but possess a superiority over the other, which renders their loss irreparable. An eminent agricultural writer says: "When it is considered that with every pound of ammonia that escapes, a loss of sixty pounds of corn is sustained, and that with every pound of urine a pound of wheat might be produced, the indifference with which these liquid excrements are regarded is quite incomprehensible." Another says: "The quantity of liquid manure produced by one cow annually, is equal to fertilizing an acre and a quarter of ground, producing effects as durable as do the solid evacuations. A cord of loam, saturated with urine, is equal to a cord of the best dung. If the liquid and solid evacuations, including the litter, are kept separate, and soaking up the liquid by loam, it has been found that they will manure land, in proportion by bulk, of seven liquid to six solid, while their actual value is as two to one. The simple statement then, in figures, of the difference in value of the solid and liquid evacuations of a cow, should impress upon all the importance of saving the last in preference to the first."

Excrementitious matter, whether solid or liquid, is by no means our only source of food for plants. Almost every farm possesses an indefinite, and often a most abundant supply, in the deposits of decayed vegetable matter known as muck or peat. This, to be sure, in its natural condition, is not readily available by plants; they would

relish and thrive upon it about as well as we would on raw potatoes, but nevertheless, the food is there, and only needs due preparation to make it both palatable and nutritious. Muck or peat is also of great value, and almost indispensable as an absorbent of liquid manure, and of the gases generated during decomposition.*

In this way it not only proves a most effectual and economical means of preventing waste, but is itself, in so doing, modified or changed so as to be converted into valuable and available manure. Muck, treated with ashes, is found to do exceedingly well. Another mode of treating it, which has many advocates, is, to slake quick lime, with a saturated solution of common salt, and mingle with the muck, in the proportion of one cask of lime to a bushel of salt, mixed with a cord of muck. Thus prepared, it is not a simple mixture of lime, salt, and muck, but during its preparation as stated above, a decomposition of the salt takes place, alkali is liberated equivalent to the ashes used in the other case, and by its action the vegetable food in the muck is rendered soluble, and thus made available to plants.†—*Report of Maine Board of Agriculture.*

* Too much can hardly be said of the value of dried muck, to be thrown into the stalls, as an absorbent for the double purpose of adding to the value of the manure, and of purifying the air of the premises.

† If convenient, it would be well to prepare this some weeks before applying it, and if turned over a few times, all the better.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE LAST OF THE SORT.

EXPLANATION; AND COMMENTS ON COMMENTS.

Messrs Editors:—I notice in the February number of *The Plough, Loom and Anvil*, some comments on a former article of mine. Does your correspondent discover any asperity of manner? I hope not, for two reasons. First, because agricultural discussions are those of all others that can best dispense with the article; and secondly, because I think it wholly uncalled for in the article referred to.

I did not (or if I did it was done unintentionally) disparage any man's section of country, but only spoke a word in favor of one.

Friend Spencer appears to have misunderstood me, as referring to the ancestral roof, when I mentioned the handsome two story house. Such was not my intention. Your correspondent appears to discover new principles in his article of comments; namely, that corn is the standard of value, or that the man who grows the most corn necessarily makes the most money; and that the man who builds a house or makes other improvements, in the West, has superior claims on the gratitude of posterity, to the man who builds a house or makes other improvements in the East. At least, they strike me as original. Is a man to be set down for a dolt, because he buys a farm in the East, instead of the West? I am one who think it takes just as smart a fellow to resist the tide, as it does to follow the rush.

Your Western correspondent may think it an anomaly, that a young man, untrammelled by circumstances, after looking over our cities, where he found plenty of young men working for their board, and hopes of better pay by-and-

by; and after taking a trip through the West, should settle down on a farm in Massachusetts. And he may be right; but I can show him an instance of the kind, if he will come to Massachusetts, which, by the way, I have just as much reason for suspecting he never saw, as he has for suspecting that I never saw a prairie. I say this not by way of disparagement. Man would indeed know but little of the world were his knowledge of it confined to that portion of it which his own eyes had rested upon. YEOMAN.

The above, is the last of the sparring between the West and the East that we shall admit. The West, and the East, and the South, are all good. We have a glorious country. Let us be grateful to high Heaven for it. It is certainly well for young farmers at the East, who have not much capital, to go West; and it is as well for those who have capital to stay East. At present, both the East and the West have, respectively, their peculiar advantages, and neither should envy the other. As the one prospers, the other will prosper in consequence; and as long as both are one, both should be satisfied. Union, now and for ever —union of every part of this great country with every other part, is our Ægis. This perpetuated, we cannot fail to be one of the greatest agricultural, manufacturing, and commercial nations, in the world; and when we look to our Smithsonian Institute, at our colleges, not as good as they ought to be, but destined to improve *in spite of themselves;* at our academies, and above all, at our free schools—the light and glory of the land—hope brightens in our vision, that we shall be the most intellectual, and the most generally educated nation. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE SEASON—BREAD FROM MAIZE, RYE, ETC.

NEAR BROWNSBURG, VA., Jan. 24th, 1857.

MESSRS. EDITORS:—I have been waiting for a rainy day to drive me within doors, that I might devote an hour or two to an article for your valuable journal.

The frosts of winter have, however, set in, and it is more than a month since any rain has fallen. Winter set in with us early. On the fourth of December we had rain, blowing off with north-west wind, and severe frosts followed to the twentieth, when we again had rain, clearing off with a snow shower, wind N.W., and very severe freezing; mercury falling to zero, and rising but little through the day. This weather has continued now upwards of a month, and the prospect is favorable for continued cold weather. On last Sabbath we had the most severe north-east storm of snow that has fallen for fourteen years. The wind was very high. The snow penetrated every crevice. The roads were literally blocked up with snow-drifts. The cars and stages have been temporarily stopped, and the farmer driven pretty much within doors; feeding his stock, and getting fuel, is pretty much all that can be done, the mercury not rising above the freezing point for some days.

The sleighing is good, except where the roads are bare from the sweeping wind. The beaux and belles are driving round, and joy reigns in the social circle.

I have been lately reading the patent office report of 1855, forwarded to me by our very excellent member of Congress, John Letcher, Esq. I read with

some interest portions of a report on experiments made by the Prussian Board of Agriculture, on meal made from maize, or Indian corn, and its introduction in that country as a cheap bread.

In the same report it is stated that the Royal Police Department of Berlin, also in December, 1855, made a report upon "The applicability of Indian corn to the preparation of bread," in which it is stated that a few resident bakers in that city, "prepare in small quantities bread, of a mixture of maize and rye flour," and that maize is used in Dantzig also. It is inferred, from the information obtained from these, and other sources, "that a bread composed of two-thirds rye and one-third maize, is about ten per cent. cheaper than bread made of pure rye; a pound of rye and Indian meal bread costing about three cents." The report goes on to say that, "It is further ascertained that such bread is eatable, and not without a pleasant taste, although Indian meal is frequently found with a bitter taste." It is added that "it stales very quickly, and in this condition can scarcely be eaten."

There is much in this report that is strictly correct. I have only made some brief extracts. Living in a Southern State, where corn meal is much used, coming up daily on our tables, and being considered the most healthy and invigorating bread that we eat, I can speak of it as an article of food from long experience, and being a mill owner, know something about grinding and preparing it for bread; of which I will now speak.

To have it nice for family use, it should be ground in small quantities, and not ground too fine. Corn that is a little flinty, or hard, makes the sweetest and best meal; it should be ground high and round; if ground too fine, the bread is clammy and sad. The husks or bran, should be sifted out as the meal is used, as the meal keeps sweeter, and for a longer period, by having the bran in it. In summer, meal should be ground every week, as it will become musty and bitter in hot weather, if kept over ten or fifteen days. Where mills are convenient, it is always better to have it fresh ground.

There are many ways of preparing this bread, from the simple ash and hoe cake to the finest of batter bread. The more simple it is made, the better it is. Our servants frequently bake it in the ashes, simply mixed with water and a little salt. I have eaten it thus prepared, and thought it most excellent bread. The more usual way is to mix the meal and water with a little salt, and bake in a skillet or oven, or on a griddle. It is very good mixed with sweet milk, or buttermilk; and still better when a few eggs are added, and baked as batter bread. It is also made into pones, somewhat light—eat warm. In this way it is sweet and highly nutritious. I have frequently heard contractors of public works say that hands who eat corn bread, can stand it to work longer without getting hungry, than on any other bread. And I have also noticed, that my horses, when fed on corn, are much more sprightly and high mettled, than when fed on cut or mixed feed, and I believe as a general feed, our stage contractors prefer corn meal, ground fine, and mixed with hay, as the best food for their teams.

With regard to a mixture of rye and corn bread, I can speak most favorably of it. Fifty years ago, when a boy, I was in the habit of visiting some German families, famous for making this bread. The proportions were two measures of rye to one of corn: it was mixed, raised with yeast, baked in an out oven, and when warm, was very fine; but their custom was to bake but once a week, and

their bread thus baked was laid away in a cool place, wrapped in linen, and kept well.

I am of opinion that corn meal cannot be exported, as it will get musty or bitter, and of course cannot make good healthy bread. But if the corn is kiln dried, and exported, then ground in small quantities, as we use it in America, I do not see why the bread should not be as good in Europe as in this country. The white flint corn, I greatly prefer for bread. Much of the yellow corn, particularly of the gourd-seed kind, has a strong taste, and in my opinion, does not make good bread. The yellow corn is considered by many as best for stock. As a general rule, corn bread is always eaten warm, only enough being prepared for the present meal; when cold, it gets dry and hard in a short time. Rye meal added keeps the bread moist.

The corn, wheat, rye, and oat crops, in this part of our State, were hardly average crops the last season, and I am of opinion we have not much surplus on hand at the present time. The quality of corn was not as good as usual, owing to the drouth. The berry of the wheat was good, and made fine flour, but was cut short by the fly, chinch-bug, etc. Oats and rye, light.

The usual supply of cattle was also short, and less by about ten thousand, than usually pass down our valley, for the graziers, and Eastern market.

The prices of Agricultural products are still fair; Wheat commanding in the interior $1 25 to $1 30; Corn, 60c. to 65c.; Rye, 65c. to 75c.; Oats, 33c. to 40c.; Beef, $6 00 to $8 00; Pork, $7 00; etc., etc.

With great respect, I am dear sirs,

Your friend, and obedient servant, etc., HENRY B. JONES.

RIPENING OF MANURES.

BOYLSTON, Jan. 15th, 1857.

MESSRS. NASH & PARISH:—Being a constant reader of your publication for years, and being somewhat interested in agriculture, I take the liberty of propounding an inquiry respecting manure, which is beginning to be the staff and stay of all farming operations. Before coming to my main inquiry, I will state my present plan of using and preparing manure: We keep eight cows, two horses, and five or six hogs, the manure of which we deposit together in a good barn cellar with a tight floor.(1) We add loam daily, so that the urine is all preserved. In the spring of each year we overhaul this mass of manure, and let it lie a few days before using. We then cart it on to our interval ploughed grounds for planting,—spread it, cultivate and harrow it in for planting corn and potatoes. I do the same in sowing oats and grass seed. With the corn, I use in the hill Mapes' nitrogenized superphospate of lime, which, by the way, I find by experience to be far superior to that made by C. B. De Burg, (2) or even our manure, putting one shovelful in hill. My question is this: Whether our manures do not need either more age to ripen, or some ingredient to help and hasten its preparation for use; and if so, will you please show us and others wherein, and oblige a constant reader?(3) H.

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1. A tight floor is, in our judgment, a useless expense. A covering of loam, or swamp muck, to be removed with the manure each spring, is the best possible

floor for a barncellar, if the ground be dry, and if it be not, it should be made so by underdraining.

2. We think our correspondent must have been unfortunate in his purchase of C. B. De Burg's superphosphate. He may have dealt with an irresponsible agent who had adulterated the article. We have frequently visited Mr. De Burg's establishment, have been invited to make the closest inspection, to take samples from the factory, the wharf, from ships, from his agents, wherever we could find them, and to get them analyzed by the best analists we knew of. We have done so—have taken samples with and without his knowledge, had them analyzed, and received in all cases such reports as convinced us that the article he is now selling is of great value; and besides, our experience with his superphosphate on the Massachusetts State Farm in 1854 and '55 satisfied us that the article then sold by him and his agents, was at least equal to any other at that time in the market. As our correspondent has made a comparison unfavorable to Mr. De Burg's superphosphate, we felt bound to say so much, and here we leave the subject for the present. Our advice to farmers is and always has been, to make the most of the farm fertilizers, not to purchase manures at high prices from abroad, and at the same time to stumble over and waste cheaper sources of fertility at home, but when they require more manure than can be manufactured on their own premises, they may rely upon it that Mr. De Burg's superphosphate will be found a good article.

3. Yes; we want our manures to be in a more advanced state, and yet to be ready for use as soon as the spring opens; and your mode of treating it seems to us one of the best modes, if not the very best, of treating it, in order to preserve its whole value, and to bring it into the right state at the right time.

N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE TREATMENT OF CHILDREN.

A CHILD whose pulse bounds with health, and whose limbs have never been trammeled by its clothing, or otherwise distorted, is naturally graceful; its motions are such as nature designed it to make. Yet there are but few children, either in city or country, who enjoy these antecedents to grace and beauty.

Mothers do not inform themselves on the proper manner of treating their children, do not study what is natural, but do as fashions or ignorant nurses dictate. Hence the dwarfed race of sallow, ill-shaped children, who are to perpetuate the human family.

"The Woman's Educational Association" reports, that in the examination of a city school, out of one hundred and eight pupils, three fourths had headaches, and ailments, and thirty-five had curvature of the spine. In a country school of one hundred and nine examined, fifty had curvature of the spine. Such are the reports that come up to us, not from orphaned childhood, not from juvenile vagabondism, but from the children of loving parents. Better would it be to adopt a Spartan severity, and transfer to the state the mother's trust, removing from woman the office she will not discharge intelligently, than thus to curse the human family.

If we look in the city for the health, joyousness and elasticity natural to childhood, we turn from the search in disgust. The little behooped, beflounced, and

befeathered butterflies of the higher and middle classes that are turned on the streets at stated hours to exercise (?) present a melancholy sight to a thinking person.

The suckling in the nurse's arms is sent out "to take the air" with its body encased in from one to six bandages, rendering the acts of inhaling and exhaling an almost impossibility.

The young "misses" and "masters," who are made up to order, are told they must not romp, (as though it were possible in their stays,) lest they soil their clothes; and they must not laugh, because it is not genteel. Children thus trained soon become listless and weak, and can be as genteel as their silly mothers desire. This process of "murdering the innocents" is the most approved, provided, in the meantime, they are sent, in paper-soled gaiters and cambric pants, over damp, cold pavements, to Monsieur Bamboozle's dancing academy, to *learn* manners, to learn to *seem* easy in their stocks and stays.

Country children, living freer lives, are more rugged than those of the city, but it is painful to see how far even they are from the standard which they can and ought to reach.

A farmer who wishes to raise superior stock is obliged to obey known laws. In order to produce peculiar qualities, he must observe peculiar conditions. It is no more reasonable to expect to excel in the business without intelligence, than it is to suppose that children can be reared haphazard, without thought or system, and the race continue to improve.

To produce superior intellectual, moral and physical endowments, there are laws and conditions to be observed, and when parents make as much effort to learn those laws and conditions as farmers do to learn the requisites for producing stock, there will be a corresponding improvement in the race.

Every teacher, from the college to the district school, should be prepared to give instruction in human Physiology, and use his influence in his sphere to make its principles practical.

Every preacher of the Gospel should be able and willing to instruct and influence those in his field.

Every physician should labor within the circuit of his practice to instruct and influence his patients.

Every editor should bring the subject before the people in his columns.

JUNE ISLE.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE ADVANTAGES OF SYSTEM IN FARMING OPERATIONS.

IT has been well said, that "order is heaven's first law," for this is apparent in all the works of creation. Throughout nature's wide domain, every tree, or plant, or flower, when unobstructed by external causes, exhibits the most perfect order in its development. The combinations, also, formed in nature's laboratory, all unite with mathematical exactness. The crystal, whatever shape it assumes, is perfect, each angle is always alike. The air we breathe is a compound, one element of which is fatal to animal life when in a separate state, and yet it combines with the other in such proportions, as to become an indispensable requisite of our existence. The instinct of the various animals and insects, leads them to observe the strictest system in all their labors. And thus all the works of God are regulated by fixed and settled laws.

And the farmer, being conversant with the works of nature, ought to be a diligent student of her operations, and from them to learn the importance of system in all his labors. Agriculture cannot be successfully pursued, without thought, reflection, observation, and comparison. From these sources that knowledge is to be derived, in part, which is to guide the practical farmer in his labors. Books and periodicals are indispensable, if he would attain to eminence in his profession. But the knowledge thus obtained, must be digested by reflection, improved, and so reduced to system by experiment and observation, as to render it available in the labor of the farm. The man that labors at random, labors to but little purpose. He may possess knowledge, but unless that knowledge be systematically applied, it will be of but little use. What a spectacle do farms and farming operations often present, where no system is observed! Chaos appears to have assumed control, and Hafed's chance world to be realized in miniature.

The thorough, systematic farmer, will undertake no more business than he can successfully manage. His plans are all matured by reflection, before the time arrives for their execution. Business therefore invites, rather than drives him. Whatever is undertaken, is done in such a manner as to secure the best results. He is not, by want of forethought, so involved in business, that much of his work will be but half performed, and his farming interests thereby suffer, and the profits of his labor lost. Having a place for everything and everything in its place, his time is not wasted in searching for his tools when needed, nor in mending broken ones, when business hurries. He settles in his mind beforehand what fields to plant, what to sow with the different kinds of grain, when and where to apply his manure, and other fertilizers. Hence his labors are so directed, that his ground is prepared in the proper time, and in the best manner for the various crops. And when the time for their cultivation arrives, he is ready to engage in it without hurry or distraction, and able to perform the work well. And then his harvest; how different from that of his neighbor, whose land is but half cultivated, and this at the wrong time! His adherence to system enables him to gather and house his crops in proper order. They are not left in the field until half wasted by rains and the various animals and insects that are eager to destroy them.

The man of system will cultivate his crops in such rotation as to improve, rather than exhaust his land. Experiment and observation will guide to such a course as is best calculated to bring all the fertilizing properties of the soil into such a state as to be available in producing crops without exhausting its fertility. In this way, land may be cultivated from year to year, and still retain its productiveness. If properly fed and managed, the effects will be as apparent as they are in the animal creation, but if overworked at random, like the worn-out beast, it fails, and refuses to yield its increase.

The importance of system is also apparent in the management of stock. Most kinds of stock, in order to be a source of profit, need constant attention, especially in winter. An animal that is well housed, properly and regularly fed, and its wants supplied, will thrive on much less food than it will take to keep one alive, that is fed at irregular intervals, sometimes even to surfeiting, and then left to half starve for a time, and this too without shelter, in the most inclement weather, when they most need care. If their food must all be burned

up in the stomach, to produce animal heat, to sustain the system, they cannot thrive, but must constantly deteriorate. Many farmers waste feed enough to half keep their stock, by throwing it out at random, without proper mangers and racks to keep it from being trodden under foot and destroyed. And by such a process, the manure that should be husbanded to enrich their grounds for future crops, becomes almost a dead loss. Manure needs care and attention, in order to retain its value, as well as the animal that produces it. Men who despise all improvement, and especially *book farming*, often err on this subject. With them the product of the barnyard is manure, if all its fertilizing properties have been leached out and evaporated; many a load is drawn to the field, that is about as worthless as the sand in the street. Thus while systematic farmers grow rich, their lands grow poor, their crops fail, and they spend their time in hurried, fretful, anxious toil, without hardly securing a comfortable livelihood.

System will also give an air of neatness to a farm, that will not fail to please. In this respect, the owner will seek to copy nature, and exhibit, in every department, symmetry and order. This will be seen in the division of his fields. All will be so arranged as to be easily accessible, fences will be erect and in straight lines, gates and bars in good condition, and in their proper place, and stumps, and rocks, and all unsightly objects removed. The orchard will be in the right place, and properly cultivated, and the gardens will exhibit not only order and beauty, but the promise of an abundance of the luxuries of life. The dwelling, and the fixtures around it, will show their owner to be a man of industry and refined taste. All things will conspire to render the situation an inviting residence, and to put to the blush the careless, ignorant, and chaotic farmer.

HUBERT.

UNITED STATES AGRICULTURAL SOCIETY.

THE following was prevented by the great snow-storm from reaching our office in time for the Feb. No. It would otherwise have been appended to the Editorial Correspondence in that number.

Meeting of the United States Agricultural Society, at Washington, D.C., Jan. 14th, 15th, 16th, 1856.

THIS Society held its fifth annual session at the Smithsonian Institution. The President of the United States, the Secretary of the Treasury, and many members of both Houses of Congress were present at the opening of its sittings.

The attendance was larger than at any former meetings. While Marshall P. Wilder, the President of the Society, was delivering his address, Mr. Pierce, the President of the United States, and Mr. Johnson, Governor of Tennessee, took their seats by invitation from him, on his right and left respectively.

It is not our purpose to give a full account of the proceedings. A few items may interest our readers. The Treasury is not overburdened. The total amount to its credit is $3,785 75. From all sources there was received at the Philadelphia Exhibition $42,062; and $40,990 was paid out.

Mr. Calvert, of Maryland, expressed an earnest desire that there should be funds to pay, as permanent Secretary, a man of sterling ability and capacity. He also wanted a department of agriculture with a cabinet minister at its head. He said: "Commerce is protected; manufactures are protected; agriculture is left to take care of itself. It pays everything and gets nothing."

From a debate which sprung up on the state of the funds and the use to be made of them, it was shown by H. F. French, Vice-President from New-Hampshire, that no money raised for the general purposes of the Society had yet been expended for the annual shows, but that these on the other hand had been fully sustained by money raised for that specific object.

Hon Humphrey Marshall, of Kentucky, made some remarks. He thought that if other nations considered it worth while to institute their great industrial exhibitions, it was quite proper for the United States Agricultural Society to do so. He considered the objects of the exhibitions desirable and praiseworthy. If the Society would come into his quarter and exhibit there, he would guaranty them ground free of expense. He desired an exhibition in the West; and he was sure that, accessible by land and water, it could be made successful. He hoped no prejudice would be any where raised against the meetings of the society.

Hon. James Guthrie, Secretary of the Treasury, stated that he was instructed to propose Louisville as the place of the next exhibition, and hoped the society would go West, and see what had been done by its people in every department of agriculture and husbandry.

The Chair then appointed as the committee on the next exhibition Messrs. Harrison, of Penn., Jones, of Delaware, Richardson, of New-York, Kellogg, of Mass., and Hartshorn.

At a subsequent meeting this committee reported "that having considered the overtures made by the citizens of Baltimore, Maryland, St. Louis, Missouri, and Louisville, Kentucky, they award a preference to the proposition made by the Southwestern Agricultural and Mechanical Association, which offers its grounds free of expense, and gauranties an amount of thirty thousand dollars as an indemnity against any excess of expenses over receipts at Louisville, Kentucky." This report was accepted, and so Louisville was fixed upon as the place for the next Exhibition.

The Chair then offered specimens of apples and pears from Oregon, which were placed in his hands by Mr. D. J. Browne, of the Patent Office, to whom they were sent by an Agricultural Society in that distant Territory. These apples and pears were of gigantic size and good flavor, especially considering the time and distance traveled since taken from the tree. Members of the society and reporters of the press regaled themselves on these fine specimens of Oregon produce.

A committee on trials of agricultural implements in the field was then appointed, with power to add to their number and make arrangements, subject to the control of the Executive Committee. It consists of Messrs. Benson, of Maine, Tench Tilghman, of Maryland, Waring, of New-York, Warder, of Springfield, Ohio, Olcott, of New-York, and Lang, of Maine.

Mr. Kimmel, of Maryland, after mentioning in terms of high encomium, for his patriotic liberty, courtesy, and public spirit, the name of George Peabody, Esq., now of London, but a native of Massachusetts and adopted citizen of Maryland, nominated Mr. Peabody as an honorary member of the society; which was seconded by Mr. B. P. Poore, who related the fact that, when on his last return to his native land, Mr. Peabody steadily avoided the ovations that awaited him from the citizens of Boston, and showed himself first to his old friends in Essex Co., and partook in the proceedings of their agricultural meeting there. The election of Mr. Peabody as an honorary member was then unanimously carried.

Mr. Kimmel then remarked that, as he thought it very desirable that the United States Agricultural Society and the Royal Agricultural Society of England be brought into closer connection, he proposed that Mr. Peaboby act as the representative of this society before the Royal Agricultural Society.

Prof. Fowler, of Massachusetts, claimed almost a right to second this motion,

for he had been at the meeting of the Royal Agricultural Society in England, where he had been treated with the greatest kindness, and had good cause to acknowledge his indebtedness to the civility and hospitality of Mr. Peabody.

Mr. Prince, of New-York, hoped that Mr. Peabody would also be accredited to the Central Agricultural Society of France, which had done so much for pomology, and which would hold its exhibition in Paris next May. In the course of his remarks Mr. P. alluded to the exertions made by the French society, particularly in respect to the *Sorghum saccharatum*.

These motions prevailed, and Mr. Peabody was constituted a representative of the United States Agricultural Society to the English and French National Societies.

The Chair appointed a committee, consisting of Messrs. J. D. Browne, of the District of Columbia; Peters, of Georgia; Clapham, of New-York; Hyde, of Massachusetts; Gov. Hammond, of South Carolina, and Hart of Kentucky, to consider and report on the merits of the sorghum saccharatum, or Chinese sugar-cane.

Mr. Jones, of Delaware, moved the appointment of a committee to memorialize Congress to organize an agricultural department, with a Cabinet Minister at its head.

Mr. McHenry, of Maryland, hoped that before that be done the subject would receive the benefit of a careful investigation, and that something of the scope of power intended to be conferred should be determined on.

Mr. Jones replied, insisting on the propriety of his motion, and expatiating on the evils of the present system, and especially of the excessive importations we are now making.

Mr. Waring, of New-York, hoped that the committee would report this morning.

The Chair nominated as the committee Messrs. Jones, of Delaware; Crittenden, of Kentucky; McHenry, of Maryland; Waring, of New-York; and Kellogg, of Mass.

Hon. J. J. Crittenden hoped that some other member would be substituted for him. He said he was not a practical agriculturalist, and besides, was so busied to-day with legislative duties, and especially the Revolutionary claims bill, as to render him unable to give attention to the subject now pressed on him.

The Chair then substituted G. W. P. Custis, Esq., of Virginia, in Mr. Crittenden's stead.

Mr. Lewis, of Massachusetts, then moved the following resolution:

Resolved, That a committee be appointed to take into consideration the subject of carrying out the plan of the Commissioner of Patents in relation to collecting agricultural statistics in the several States named in his last agricultural report.

Mr. Walsh, of Maryland, proposed to refer the subject of the last resolution to the committee last appointed. This motion prevailed, but was almost immediately reconsidered.

Vice-President French moved the appointment of a special committee, which was carried; and the Chair appointed accordingly Messrs. Lewis, of Massachusetts; Walsh, of Maryland; and Wager, of New-York.

Vice-President French then proposed that the society informally discuss the merits of the *Sorghum saccharatum*. This did not prevail.

Mr. Secretary Poore submitted a report from the committee appointed to urge on Congress the subject of meteorological observations, and proposed that it be published.

Mr. Lewis, of Massachusetts, prefaced the series of resolutions following by remarks on the great want of precision of knowledge possessed by agriculturalists on agricultural and kindred subjects. Notwithstanding all that had been done, the ignorance abroad is astounding—every thing almost loose and uncertain, and unlike what prevails in other walks of science and human concerns.

His aim was to remedy this, and to obtain something like rule and order on these subjects. He therefore moved the following resolutions, to wit:

Resolved, That a committee of five be appointed to establish a scale of points which may be considered as constituting perfection in the various breeds of cattle, horses, sheep, and swine.

Resolved, That said committee cause accurate drawings to be made delineating each of the various breeds and sexes, with said points clearly indicated.

Resolved, That said committee recommend what number of points or degrees of perfection shall entitle any animal to receive any or what premium at the annual exhibition.

Resolved, That said committee recommend what further regulation should be adopted by the society for the direction of committees in passing their judgment on stock entered for premiums.

Resolved, That said committee submit their report to this society as soon as practicable, to be acted upon by the members.

After much discussion, the foregoing resolutions were adopted, with an amendment by Mr. Dyer, of Connecticut, as follows:

Resolved, That a committee of five be appointed on each of the prominent classes of neat stock, on horses, sheep, and swine.

We wish it were in our power to report as fully on the proceedings of the second and third days. But as our space forbids, we will only say, that the meeting was, in the main, harmonious, and was full of interest. On the morning of the second day the officers of the former year were all unanimously reëlected. The address of Hon. Marshall P. Wilder, on resuming the Chair for a new year was brief, but touching, evincing, when viewed in connection with his past doings, an admirable devotion to the great cause of Agriculture. One of the most important results come to was that of petitioning Congress for land for the purpose of endowing an Agricultural Institution in each of the States and Territories.

In the progress of the sittings, Prof. Henry, of the Smithsonian Institute, gave a lecture, detailing the investigations now in progress by that Institution on the subject of climatology, storms, etc. It was intensely interesting, and to our mind, afforded satisfactory evidence that the Institute, under the auspices of Prof. Henry, may be expected to effect a vast amount for the industrial interests of the country, and for none more than agriculture.

The sittings were closed by a valedictory address by George Washington Park Custis, the farmer of Arlington, across the Potomac from Washington City, now seventy-six years of age. Had the Father of his country been raised from the dead for the purpose of addressing the meeting, he could hardly have spoken more affectionately, or more eloquently, or more wisely. Mr. Custis is a descendant of Lady Washington, but not of the General. He is sometimes called the last of the Washingtons. If last, he is not least: nor can we admit that he is the last, since George Washington was the father of all the American people.

We sincerely hope that the proposition to come before Congress from a committee of this meeting, for the purchase of Mount Vernon for a model farm and a school of agriculture, will find favor from that honorable body. Why should it not? It is understood that the present owner, while he would not transfer this property for any private purpose, is willing to dispose of it to the nation, for such a purpose as is contemplated by this society. Herein is he right. It should be public property owned by the people, open for resort to all who would learn lessons of practical wisdom at the tomb of the father of his country; and at the same time, why not make it answer a great, practical and benevolent purpose, aiming at the good of the whole nation?

Manufactures, Mechanics, etc.

WOONSOCKET, R. I—ITS INDUSTRY.

THERE are none so blind as those who will not see. How a man with only one eye, can read such statements as that below, from our friend E., without giving his whole influence to the encouragement of American manufactures, we cannot tell. We would not believe it possible, had we not actual demonstration of the fact. Why will not our Southern friends open their eyes so as to appreciate such results. But let our correspondent be heard. P.

WOONSOCKET, R. I., January 20th, 1856.

MESSRS. EDITORS:—Did you ever hear of Woonsocket, in the little State of Rhode Island? Were you ever here? Both of these questions I hope you are able to answer in the affirmative, but as I do not recollect ever to have seen a notice of it in your excellent periodical, although I have been a subscriber and reader of it for the last five or six years, perhaps you will allow me to pass briefly before the view of your readers a few of its most notable and characteristic features. An industrial locality like this, though quiet and unassuming, yet so active and energetic, and daily sending forth, in the great channel of trade, so large a quantity of the manufactured fabrics of cotton, as does this same Woonsocket, will have its place, and make its mark, amongst the great producing communities of the country, and as such must share the interest with which the business and the reading communities regard all the sources from whose workshops and laboratories go forth the streams which, when united, make the great aggregate of our domestic trade and commerce. Woonsocket is not interesting alone for the extent of its manufactures. When the red children of the forest rested in their quiet haunts along the beautiful river, whose waters now turn the massive water-wheel and drive the noisy loom and spindle and indeed until the hand of the white man, in a great degree despoiled it of many of its charms, it was a place of singular and romantic beauty. A natural fall in the Blackstone river, at this place, of some twenty feet, over cleft, and jutting, and cavernous rocks, was one of its original features, and from some of the peculiarities in the original character of these falls an interesting writer on the derivation of Indian names has traced the name of our village, slightly modernized by the irreverent Yankee, by which the Indians used to designate this vicinity. The Indian name, or word, used, was "Woone-suckete," which signifies, in the Indian vernacular, *thunder mist;* and the idea of applying it, it is supposed, arose from the columns of spray, and the hollow and reverberating sounds produced by a full tide of water, plunging and tumbling amid the chasms and caverns of the rocks. Traces of its old beauty are still to be seen, but the unscrupulous hand of improvement has swept them mostly away.

But it is Woonsocket "as it is," that will most interest the practical reader of to-day. Woonsocket, then, is built upon the Blackstone river, some eighteen miles from its mouth, where, after turning, in its whole course, say five hundred water-wheels, it delivers its "industrial" waters into the Providence river, a mile south of the city. The Providence and Worcester railroad passes

through it, giving its business most excellent facilities, and from which it receives more tons of freight, and more passengers, than it does from any other point upon the road, excepting its southern terminus, the city of Providence. It contains within itself, upwards of six thousand inhabitants, and within a radius of two miles, two thousand more. Its principal manufactures are, a first class article of cassimeres, cotton goods of various descriptions, and nearly all the different kinds of machinery used in the manufacture of both woolen and cotton.

It might be mentioned, also, as a singular fact, that perhaps three-fourths of all the "scythe stones" used in the United States are manufactured here. We have also a manufactory here of wind musical instruments, where instruments of a very superior quality are produced, that have a reputation in Europe as well as in this country.

But it is for its manufactures of woolen and cotton, and of machinery, that it most deserves public notice. It has, in reality, but one manufactory of cassimeres, though there are several large mills, all owned and conducted by Mr. Edward Harris, a man most indefatigable and successful in his business, whose fabrics you may see quoted in the New-York markets, as amongst the leading goods in the country, and are, indeed, very beautiful and superior, nearly, if not quite equal, in all respects, to the finest and best French goods. Mr. Harris, in his manufacture consumes yearly, about 600,000 lbs. of wool, producing about 475,000 yards of goods, valued at about 600,000 dollars. Such is the popularity of his goods that he wholesales many of them himself, and probably might do so much more extensively than he does, but being a man of generous principles, as well as great business capacity, he is quite willing that others, as well as himself, should participate in the profit of their sale. The cotton manufacture here is now divided, as well as diversified. There are no less than fourteen distinct manufactories, comprising twenty separate mills; some of them in corporated companies, and some owned by single individuals. These mills contain an aggregate of about 75,000 spindles, and 2,000 looms, consuming annually about 10,000 bales, or five million lbs. of cotton, and producing from fifteen to twenty million yards in the same period. Of the aggregate, we should say upon a rough estimate, one-fourth part was *coarse* heavy sheetings, one-fourth ditto *fine* heavy sheetings, and the remainder "printing goods" of various grades. The machine building is principally done by Messrs. W. & L. A. Cook, who have long been extensively engaged in the business here, and manufacture a very good article of machinery. I must not omit to say that we have two good institutions for the safe deposit of the earnings of the operatives and others, in which are now deposited nearly half a million of dollars. We have also six banks of discount, five commodious houses for religious worship, and an excellent system of graduated public schools, which have been recently established at a large expense, and are very efficient in their operation.

We, of course, have a plenty of commercial gentlemen who, with commendable liberality and disinterestedness, supply the wants of the village and vicinity.

Thus we give you a "bird's eye view" of "*our village.*" If you think it "worth the candle" we should be pleased to see it in print. If you think otherwise we shall not "stop our paper," nor sleep one wink the less.

Yours truly, E.

LIGHTS, — GAS LIGHTS, ETC.

Gas, Coal gas, Oil gas, Rosin gas, Mode of producing, measuring and testing, Reading the Metre, Defending from Frost, etc.

Let any one of us be deprived of the ordinary source of light to which we have long been accustomed to resort after daylight disappears, and we shall very soon appreciate the value of such conveniences. No matter if it is but a tallow candle, it is a step beyond any thing before tried, and is better than any substitute at hand. All improvements, available by our housewives, in the production or management of that domestic product, are of no inconsiderable value. We shall try, by-and-by, to make some useful suggestions on that point, in reference to candles, lamps, etc. But we now have our attention directed to the more brilliant of the combustible materials used for such purposes; and though we do not know how extensively gas, in any form, is used by our readers, it may be, that we can give such information as will put within their reach, in some form, the very best of all illuminating materials at a moderate cost. Those who have once used gas, with proper fixtures, will not wish to resort to any substitute. The use of gas, in any form, is comparatively modern. Coal gas has been known as an inflammable substance for some two hundred years, and received from different chemists different names. But no practical use of this discovery was made for a long time. A German chemist, Becher, attempted something of this sort about the year 1760, and entirely failed; and it was not for many years afterwards that any progress was made in that direction. In 1785, Lebon proposed to procure illuminating gas from the distillation of wood. In 1792, Murdoch first applied coal gas to purposes of illumination, and made the first public exhibition of the process and its results in 1802. The first London Gas Company commenced operations in 1805, distributing gas through one hundred and twenty-two miles of pipe. Now, the annual consumption of gas in London, is not less than three thousand millions (or three billions) of cubic feet, or sixty thousand tons of gas.

Illuminating gas, is heavy carburetted hydrogen gas. But the great differences in the quality of gas furnished by different companies, or even by the same company at different times, shows that, like city milk, the article is sometimes very badly adulterated. It would be a great security against swindling, should our householders know what is given them under this name, and if they could test, by a cheap process, the quality of their gas.

Gas, manufactured on a large scale, by city companies, always contains many impurities, from which it ought to be freed. The very offensive odor, so often perceived in the streets, is chiefly from sulphuretted hydrogen. But this is as useful to the gas company, as the pump is to the milkman; and the fact that it contains no illuminating power, is of no consequence, as long as every cubic foot of it is duly registered as it passes through the metre as pure illuminating gas. Heavy carburetted hydrogen gas, bi-carburetted and per-carburetted hydrogen gas, are synonymous. The terms *Olefiant gas*, as used by Turner, in his Chemistry, or *Marsh gas*, as it is called by Booth, refer to the same product. There is a light carburetted hydrogen gas, containing but half the proportion of carbon required in illuminating gas, and possessing very little illuminating power. This is always mixed more or less with the heavy, in our large

gas works. It constitutes the "fire damp" of mines. A hundred cubic feet of it weigh 16·944 grains, and its specific gravity is ·5555. The heavier gas may be produced without difficulty, on a small scale, by a process we have often exhibited, by mixing in a large glass retort six parts of strong alcohol with sixteen parts of strong sulphuric acid, applying the heat of an argand lamp; though this gas will need purifying, to free it from the sulphuretted hydrogen. A hundred cubic inches of the heavier gas, will weigh 29.654 grains, and its specific gravity is .9722. Whenever the weight or specific gravity falls below these figures, the gas is impure, and of diminished value for illuminating purposes.

COAL GAS.

The destructive distillation of coal is the ordinary source of illuminating gas, though fats, rosin, and wood, are sometimes employed. One pound of Cannel coal, in experiments by Mr. Peckstin, was found to produce 5·29 cubic feet of gas. Other coals produced less, ranging all the way from the amount just mentioned, to 1·87 cubic foot. The same chemist found that a chaldron of Newcastle coal, in eight successive hours, produced constantly diminishing results, as follows:

1st hour	2000	cubic feet,
2d "	1495	" "
3d "	1387	" "
4th "	1279	" "
5th "	1189	" "
6th "	991	" "
7th "	884	" "
8th "	775	" "
In eight hours	10,000	" "

The quality of the gas also changes, the first products being the best. In experiments by Dr. Henry, it was shown that the specific gravity of the gas given off during the first hour was 650, 620, and 630, while after five hours, it was 500, and after ten hours, only 345. After ten hours' distillation, the gas contains but very little illuminating power. Its proportion of carbon is very small, making only a light carburetted hydrogen; and, indeed, the compound gas seems to be decomposed, so that the flame burns with the blue which distinguishes the combustion of hydrogen gas. In experiments by Marchand, the quantity of carbon combined with a hundred feet of hydrogen gas, was diminished from 614, down to 7.

But the richest varieties of cannel coal will produce much more than this. That known by the name of Boghead Cannel, which is found about half way between Edinburgh and Glasgow, yields 13,000 cubic feet to the ton, of the specific gravity of .775. A gas burner which consumes one cubic foot per hour, of this gas, gives a light equal to 8½ sperm candles, each consuming 120 grains of sperm per hour. Scotch Parrot coal is next in the list. But different qualities of coal, beginning with those just named, and ending with the meanest of the Staffordshire coals, produce different amounts of gas, of a given quality varying from 18700 to 9200 cubic feet.—(Tomlinson.)

The quality of the gas is also injured by the presence of moisture in the coal. The action of steam, at a high heat, tends to produce carbonic oxide gas, light carburetted hydrogen, and hydrogen, or chemically expressed, $C_2 H_2 + H O C = O + C H_2 + H$. Ten per cent., hydrometric measure, of moisture in

coal deteriorates the illuminating quality of gas, from that produced by dry coal so much, that the proportion of olefiant, or heavy carburetted hydrogen gas from such coal, to that from dry coal, is as 1 to 1·5. The specific gravity of coal gas varies from .443 to .700.

OIL GAS.

Oil gas requires less purifying than coal gas, for it contains no sulphur, and less carbon and hydrogen. One gallon of whale oil produces 90 cubic feet of gas. The illuminating power of oil gas is to that of the best coal, as 2 to 1. The specific gravity of oil gas varies from .446 to 1.100.

When coal cannot be had at moderate rates, fats may often be used advantageously. Some of the Western river-boats are supplied with gas from the refuse fat of the kitchen. In Rheims, gas is produced from the soap-suds used to free woolens from grease. The soap water is treated with sulphuric or muriatic acid, when the fat collects on the surface of the liquid. This is re-melted and purified by a little sulphuric acid, to effect a clarification, then with crude soda, to make soap, and the residue is distilled in retorts, like rosin, for the production of gas.

ROSIN GAS.

One pound of rosin yields from ten to twenty cubic feet of gas, the illuminating power of which, compared with that of coal gas, is as 3 to 2, and with that of oil as 3 to 4. But we omit other statements for the present.

WOOD GAS.

It is but recently, that successful experiments have been made in the manufacture of illuminating gas from wood. A patent was first applied for in this country, in October, 1853, by a German chemist, the assignee of the discoverer, Emil Briesach. Under this patent, different gas works have been erected in this country, and we believe, with very satisfactory results. Where wood is cheap, this gaseous product will also be cheap. The residuum consists of charcoal and tar, both valuable in the market. Creosote and pyroligneous acid may also be obtained, wherever the state of the market secures for these a sufficient value. Different kinds of wood may be used for this purpose, pine, spruce, beach, oak, etc., if it be perfectly dry; and if the wood is as cheap as in many districts of this country, the cost must be very much less, indeed, but a small fraction of the cost of coal gas at its ordinary rates. The Philadelphia City Gas Company, through Dr. Crawson, their engineer, some two years since, made the following statement of the product of gas from wood.

"One cord of ordinary pine wood, of 128 cubic feet, produces gas-light equal to 800 lbs. of spermaceti candles; one cord of oak or maple, of good quality, will yield gas light equal to 900 lbs. of spermaceti candles." This estimate is upon wood used without a careful drying. When this is thoroughly attended to, a cord of pine wood has produced light equal to 1300 lbs. of spermaceti candles.

WHO CAN ENJOY THIS LUXURY.

It is not the inhabitants of cities or even of villages, that now enjoy a monopoly of this sort. Indeed, it is very questionable, in our opinion, whether those who live in cities cannot advantageously rely on their own resources, without the aid of gas companies, for this manufacture. There are so many complaints of the quality of gas, of interruptions in the use of it, the connec-

tions being cut off to mend defects in the street pipes, or to make new connections on new streets, or with new structures; so much freezing and thawing, so many disputes, and such ill feeling from doubts as to the honesty of the monthly bills that are rendered, that when one can have his gas fixtures where he can defend them effectually from the cold, and from all other obstructions, and completely under his own control, it is certainly, in itself, desirable to do so. Several of the larger hotels of this city manufacture their own gas; and not a few individuals light their own stores or dwellings with gas produced in their own basements.

IMPORTANT INFORMATION FOR THOSE WHO USE GAS.

How to read the Metre.—Every family which buys gas of a company, should know how to read the metre, which determines the amount of gas consumed. On opening a small door are exposed three faces, like those of a watch, but figured only to ten, with an index on each. The right hand dial expresses hundreds, that is, if the index points to 3, it means 300. The figures of the middle dial express thousands, and if it points to 3, or between 3 and 4, means 3000. The figures of the left hand dial express tens of thousands. These must be read *by the last figure which each index has passed.* If the indexes of all the hands are between 3 and 4, it must read 30,000, 3000, 300, or 33,300. If the left hand index is at or past 5, the middle one at or past 6, and the right hand index at or past seven, it should read 56,700. When the monthly entry is made, as a basis of charge, this sum is to be subtracted from the record for the preceding month which must of course be preserved, and this shows the amount consumed meanwhile, and to be charged.

IF A METRE FREEZE, envelop it thoroughly in thick cloths dipped in very hot water, and repeat the process till the ice is melted. This will generally suffice, without meddling with the interior of the metre. But if not, then remove the upper thumb screw, and pour in boiling water freely, drawing it off when cooled, through the *lowest* opening. Repeat this process till the ice disappears. Then, replacing both these screws, unscrew the middle thumb screw, and let all the water run out that will run rapidly; but when it begins to escape gently, falling at once from the orifice without projectile force, replace the screw, and the metre is fit for use.

If the large iron pipe is exposed between the wall of the basement, as it often is near a basement door, and the street, it may be that moisture has been condensed and water accumulated there and frozen. Hence, if, when the gas is "let on," and the lowest thumb screw is removed or loosened, the gas does not rush out while the metre is free from ice, then pour boiling water along the exposed pipe, until by heating through the pipe the ice is melted.

BAD GAS.—Very strong odor indicates impure gas. The presence of light carburetted hydrogen can only be detected by a chemist, who may judge by its weight in vacuuo, or by other tests familiar to those accustomed to chemical operations.

We propose to make further practical suggestions, on this subject, and describe the various means of manufacturing, using, measuring, and testing gas, in private dwellings, in our next number. P.

LIQUID AND SOLID SUBSTANCES USED FOR ILLUMINATION.

Sperm Oil, Whale Oil, etc., Camphene, Burning Fluid, Spermaceti, Wax, Stearine, Stearic Acid, Tallow; Snuffing Candles; Different kinds of Lamps.

Oils are used for the purpose of illumination more extensively than any other substance. They are of various kinds, and require very different treatment.

Rosin Oil.—So far as illuminating power is concerned, rosin oil doubtless stands at the head of this list. But the offensive odor which escapes from it, from which it cannot be entirely freed by any process hitherto known, is a strong and fatal objection to its general use for domestic purposes. It is exceedingly rich in carbon, and of course produces a large amount of smoke when its combustion is imperfect. Hence, it requires a lamp of peculiar construction. A powerful draft in perfect contact with the flame by means of a circular wick, and a proper chimney, are indispensable. But when such lamps are properly adjusted the flame of this material is quite as brilliant as that of the best gas-light, and is produced at a very moderate cost—less than one half that from sperm oil. Several lamps have been patented with especial reference to the use of this oil.

SPERM OIL, WHALE OIL, ETC.

Sperm oil is the product of a particular species of the whale—*Phaseter macro-cephalus*. The blubber, or the fatty substance which envelops the entire animal, and forms the mass of his bulk, is cut into convenient pieces and exposed to pressure. Sperm oil is the liquid product. The base of all fats is either stearine, oleine or margarine. The first is solid, the second is liquid. Margarine occupies a position between the two, being almost a semi-fluid. Oleine is the base of oils, and stearine of tallow, or the solid fats. It is the varied mixture of these three substances, or the proportional quantity of each, which produces the different consistency or degrees of fluidity, observed in different fats. By repeated pressure, in a cold atmosphere, the oleine is separated from the stearine and forms an oil which remains fluid in a cold atmosphere. But oil from which the stearine has not been thus separated hardens when exposed to a low temperature.

Whale oil, train oil, etc., are obtained from other species of whales, and from various kinds of fish. These oils, it is well known, are not held in much esteem, but a process has been discovered within a year or two by which they may be purified and rendered suitable for illumination, etc. The process is as follows: Common whale oil is placed in a still with an ounce of sal ammoniac and a pint of turpentine to each gallon of oil. Heat is then applied, the mixture being stirred constantly by a rod passing into it. The oil that is distilled is of superior quality, though peculiar in its character. A residuum of black pitch is left in the still. Another process has also been discovered for producing similar results, to wit: by passing the impure oils through serpentine tubes of considerable length in intimate contact with steam. The oil must be divided as much as possible by passing it through a diaphragm of copper pierced with numerous holes, thereby exposing a large amount of its surface to direct contact with the steam. A patent was obtained in 1854 by a Mr. Drayton, for purifying any oil, whether animal, mineral, or vegetable, which consists in mingling with the oil about one fourth its bulk of alcohol, shaking them from two to five minutes,

and then suffering the mixture to settle. The purified oil, settling below the alcohol, may be drawn off for use. A common oil filler may be used, for such a process, on a small scale, by stopping up the snout, provided care is taken afterwards in decanting the oil, and if the pouring is not continued long enough to mix the oil with the alcohol and other impurities. Such a process might test the value of the process, if it should accomplish no other good. But we have some faith in it.

Lard oil, and even lard in its crude form, may be used in lamps so constructed that the flame of the lamp shall communicate its heat to the burning material, liquifying it and heating it, thereby fitting it for more ready combustion.

CAMPHENE, BURNING FLUID, ETC.

Camphene is the purified spirits or oil of turpentine. Burning fluid is a mixture of camphene or spirits of turpentine and alcohol. These preparations produce a brilliant light, though at a cost quite equal to that of the common oils. But they have the advantage of cleanliness. The hazard of an explosion or of combustion is the only objection to their common use. The liquids are not themselves explosive, but the gases given out from them, mingled with atmospheric air, are explosive, and the liquids are highly combustible. Pour a few drops, or a teaspoonful of the liquid into a large can and shake it thoroughly so as to fill the can with its vapor, and then let a lighted flame approach the nozzle of the can, and there will be no doubt whether camphene gas or that of burning fluid "will explode." We have often seen a cork loosely fitted into the top of the can, driven with violence by this means, against a high ceiling. The principle of Davy's safety lamp has been applied to portable and table lamps for burning fluids by Mr. Newell, of Boston, which are for sale in this city and elsewhere. We described this lamp in a former volume, and have tested its merits by use from a still earlier period. The invention is a perfect security while the lamp is unbroken. Other forms have been devised for the same purpose, with which we have had no experience. One of these is by Prof. Horsford, of Cambridge, Mass. He has also secured a patent for an improvement upon its original construction. But more on this point hereafter.

SPERMACETI CANDLES.

These are manufactured from a substance which abounds in the head of the sperm whale. When this fat is clarified and pressed for the removal of various foreign matters, it forms the spermaceti of commerce. Spermaceti melts at 112°.

WAX.

Wax is obtained from the comb of the bee, and forms the cleanest but at the same time the most expensive light in common use. It is a vegetable product, abounding in the pollen of flowers, and occurs also in other parts of vegetable growth. But bees will deposit wax when they are fed exclusively on sugar, and we must thence conclude, perhaps, that it is also an original production of that industrious insect. Wax is also formed by other species besides the honey bee. Wax melts at about 150°, or perhaps at a little lower temperature.

Wax candles are not run in molds, because of the tenacity with which they adhere to the molds, and also because the wax contracts in cooling. The process of their manufacture is as follows: The wicks are suspended from rods, as

if for dipping, each wick being kept in its place and properly twisted by the hand, the melted wax is gradually poured over it from its upper extremity. This process is repeated till a sufficient thickness is obtained, when the candle is rolled upon a smooth table of walnut wood. The large candles used in Roman Catholic churches are made by placing a wick upon a slab of wax, bending this together and then rolling it.

STEARINE

Is a substance resembling spermaceti both in appearance and composition. It exists in all the fats, but is most abundant in mutton. It melts at a temperature of 130°.

The manufacture of candles from stearine has become a very extensive business in this country and elsewhere, being obtained in great quantities from fat pork. The stearine may be separated from extraneous matters by boiling the fat with lime or some alkali, a salt being formed, and then decomposed by a stronger acid, or if the tallow is pressed between hot plates and then dissolved in hot ether, and cooled, the stearine will be deposited.

The present improved process for manufacturing candles of stearine is as follows: The fatty matter is exposed at a high temperature to the action of sulphuric acid, which changes it into a mixture of fat acids of a very dark color, with a high melting point. This is then distilled in an atmosphere of steam. The distilled material is used for making the cheaper description of composite candles, or is subjected to hydraulic pressure, first at the temperature of the air, and then at a high heat, the result being the material used for making what are known as the *Belmont sperm*, corresponding with stearic candles. The material used by the patent candle company, Belmont, (England,) is palm oil. It consumes over 4000 tons of Palm and Cocoa nut oil per annum. It employs 900 hands, besides steam and hydraulic power.

These candles are hard, and almost as desirable as wax. They are, however, inferior to those made of

STEARIC ACID.

To obtain this substance, mutton suet is saponified by boiling it with potash; the purified soap is then decomposed by an acid, and a mixture of stearic and oleic acids rises to the surface. The oleic acid, which is limited in quantity, is separated by pressure between warm plates. By solution in hot alcohol, and subsequent crystalization, it is further purified; the process being repeated till the melting point is constant at about 167°.

TALLOW.

The rapidity of the combustion of rough tallow is so great, and its illuminating power is so small, that candles made of such matters are, in fact, more expensive than are those of higher cost. The following process describes the proper treatment to be pursued with this material: The tallow is cut in small pieces and melted. Membranous portions, called cracklins, rise to the surface and are skimmed off, being afterwards freed from the fat which adheres to them by pressure. The liquid tallow is then strained through a coarse sieve, and boiling water is mixed with it. The water carries certain impurities with it to the bottom, and after settling, the melted tallow is lifted out and is ready for use.

LARD.

The following process for making lard candles is recommended by the *American Farmer:*

"Take one quarter pound of alum, one quarter pound of saltpetre; pound it

fine; put it in a pan and add sufficient water to dissolve it, but no more; when dissolved, pour in three pounds of melted lard; let the mixture stew over a slow fire; keep stirring until the water has all evaporated, which will be the case as soon as the alum and saltpetre shall have collected in small lumps at the bottom of the pan, when it may be poured into the molds, the dross remaining in the pan, and molded the same as tallow. Candles thus manufactured will be harder, and give a better light than those made of tallow, but will have a straw color."

WHAT IS FLAME?

Flame is not a luminous mass of gas merely, for such flame might have but little illuminating power. Such is the flame of hydrogen. But if solid matters, very minutely divided, such as charcoal dust, become white hot in the flame, they greatly increase its luminosity. In the artificial lights, of which we are treating, minutely divided carbon supplies this matter and secures a brilliant flame. The fibres of the wick act only as capillary tubes, conveying the fat into the flame. The central portions being excluded from the oxygen of the atmosphere, are but partially consumed in certain circumstances, and then they escape in the form of smoke. The degree of contact between the gaseous products of the fat or oil and the outer atmosphere determines the degree of combustion, and, of course, the degree of heat, and this again affects the brilliancy of the flame.

SNUFFING CANDLES

Is a process required by the inability of the combustible material to consume the wick. The wick is surrounded by the gaseous products of the candle, and is thereby partially excluded from the action of oxygen, and its combustion, of necessity, s very imperfect. When the wick becomes long, it interrupts or divides the blaze of the candle, and thus diminishes the light. It also exerts a cooling influence upon the flame, and thus operates unfavorably. Stearine, spermaceti and wax, being less fusible than tallow, which last melts at 92°, may be burnt with a smaller wick, and if the wick be reduced to the least practicable size, that is, to the least size capable, when lighted, of melting the surrounding fat sufficiently, it will bend over, exposing its extremity to the outer edge of the flame, where it will be consumed and the necessity of snuffing will not exist. The wick of tallow candles is too substantial to be thus entirely consumed, and hence must be cut off by snuffers. But the bending of the wick of sperm candles is caused partly by a tight braiding or twisting of its fibres. Were this done to the wick of a tallow candle, its excessive heat when thus bent down, would melt the candle and produce "gutters."

Were our purpose scientific, rather than practical, we should make especial reference to other products now but little known, but regarded as valuable for illumination. Such are some of the vegetable oils of Africa, and of the East, especially Cocoa nut and Palm oil, which are already important articles of commerce; the vegetable tallow of the *Vateria indica* and other plants, the growths of the Chinese and the Archipelago Islands. There are many vegetable waxes also, both foreign and native, that are of considerable importance, and may be held hereafter in still greater estimation. Among these is the Myrica cerifera, the Bayberry or Wax myrtle of our own country, from which comes the Bayberry wax of commerce. The wax is separated from the berry by treatment with boiling water.

We purpose to pursue this subject by describing the various lamps and other

apparatus necessary for the use, by private families, of either of the modes of lighting their houses, whether by gas, or by the liquid substances already described. We believe a great revolution is at hand in respect to these matters.

P.

ARTIFICIAL STONE.

PROGRESS is the order of the day, but we must be allowed to insist that there are some things that cannot be done. We confess that we are very much inclined to believe that the discovery of a process for dissolving building stones and reconstructing them in any form, size or style of finish for architectural or other purposes, that may be desirable, as is now claimed to be in successful operation in England, is one of these impossibilites. That almost every kind of stone has a solvent, we do not doubt. But we are as confident that many of them cannot be crystalized anew, after given models, and that where even this is possible, it may not be practicable, the cost being such as not to make it an object of pursuit for such purposes. We do not, however, profess infallibility. It may be a valuable discovery in the construction of busts, or for some ornamental purposes.

Mr. F. Ransome, of Ipswich, England, claims to be already successful in this, and we give a condensed account of his process, sufficiently full to show the philosophy of the results which he obtains with the materials on which he operates.

The first process is to obtain from some crude material a pure caustic soda. When all the impurities that can be separated by the means there used are separated, the soda, now almost free from foreign matter, is drawn off into a close tank where a different process is pursued, for securing the same result. The caustic soda is then pumped into a vertical boiler or digester, in which the solution of the silicious materials is effected. This digester is furnished with a steam jacket, which is supplied with steam from a boiler below it. It is also provided with a wire basket, through its whole extent, which serves to hold a collection of nodules of common flint. When this basket is filled with flints, and the digester with the caustic lye, the whole is closed up and made to sustain a pressure of at least 60 lbs. to the inch. A cock is then opened, and the full pressure of the steam passes into the jacket and causes the lye to rise to the same temperature, and the condensed steam returns to the boiler, through a pipe which enters it below the water line. This pressure is continued about thirty-six hours. Then, if it appears by chemical tests, which are applied, that the alkali has taken up as much of the silex as it is capable of doing, at that temperature, the steam-pipe communicating with the jacket is shut, and the cock of another steam-pipe is opened. The pressure of this steam forces the fluid silicate into a third vessel, where it is allowed to stand for a short time, to deposit any sediment which it may contain, after which it is conveyed to the evaporating pan, which also has a steam jacket. It is here boiled till it has the consistence of molasses, and the process is considered as complete.

Different varieties of material are used, and in different proportions, for producing different kinds of artificial stone. Sometimes a portion of clay is used with the silicious ingredients, which enables them better to endure the intense heat of the kiln, and to prevent a glaze on the surface.

P.

RAILROAD MANAGEMENT — BALTIMORE AND OHIO RAILROAD.

THE nineteenth annual report of the Baltimore and Ohio railroad has been laid on our table, and is worthy of especial consideration. Mr. Felton, the accomplished President has done much for it, and in this document numerous suggestions are presented, too valuable to be overlooked by managers, directors, and stockholders, in the different railways of this country. We select the following, as containing matter worthy of consideration in the management of such interests, independent of its connection in this report:

"With such locomotives as were originally used, and with a speed of 18 or 20 miles per hour, the iron rail of 56 lbs. to the yard would have lasted fifty years or more. The business of railroads proving to be so much greater than was estimated, required more frequent trains, or a heavier class of engines. The heavier engines were adopted without once imagining the increased cost of running. As railroads became more numerous, competition sprang up, and the weight of engines was still further increased and the speed of trains doubled. In this state of things, the track and machinery depreciated, till finally, the shattered engines and cars, and worn-out track, forced upon railroad men a knowledge of the cost of heavy engines and increased speed.

Mr. Felton judges that there are very few roads whose business will justify the running of such trains, even at a high price. He treats the matter in a purely practical way, his deductions being drawn from facts, and not theories. A maximum load of passengers, over a tolerably straight and level road, will pay, he says, at three cents a mile, with a speed of thirty miles per hour, including stops. But heavy grades, short curves, and empty cars one way, use up the profits that would otherwise accrue. Heavy grades can be overcome, but they greatly increase the expenses, and require diminished loads. Hence they are very expensive, and consume the profits otherwise earned on the road. The Reading railroad can transport coal at two cents a mile per ton, with a favorable grade for their heavy loads, and ascending grade for comparatively empty returning cars; but this does not prove that, with the reversing of these circumstances as "with heavy grades against the trade," any other road could transact such business even at three cents a ton.

The first class passenger locomotives of the Baltimore and Ohio railroad will haul at the required speed, five hundred passengers, and the same class of freight engines will haul, at twelve miles speed per hour, three hundred tons of freight. Were all these trains "maximum trains," a dollar per passenger would pay well, but the hauling of empty cars increases very much the cost of transportation.

Mr. F. recommends offering encouragement to way business, as an important feature. We are confident that the relative importance of this kind of business is not overrated. We have watched this department of railroad business with great interest, though not so much on account of its material and direct influence on the interests of the road, as for another and still greater influence upon the industry of the people on the line of the road. A very large share of the profitable business of many New-England roads consists of this kind of freight and of passengers. Our readers may remember some statistics of this sort published, we think, in 1852 and 1853.

We are very happy to learn that the actual profits of this road have increased

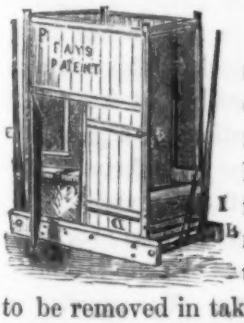
very largely over those of former years. The report can not fail to be very satisfactory to stockholders. The company is represented as being in a very prosperous condition, nearly free from floating debt, with valuable real estate in possession. In the examination of this report we see accumulating evidence of the remarkable abilities of their efficient President, to which we have testified on former occasions. P.

Recent Inventions.

SELECTED AND PREPARED BY M. P. P.

Dressler's New Sheet Metal Roof.—The reader will see in our advertising sheet, that Mr. Dressler, of Fairhaven, Pa., has a patent for a new roof which promises to be a great improvement on former styles of roofing. The saving in time required in placing it, the ability of the joints to contract and expand, without injury, and the mode of fastening, are valuable features in it, and render it highly worthy the attention of builders. The seams are so constructed, the edge of one sheet being inserted, perhaps a fourth of an inch, into the folds of the contiguous sheet, that it has play enough to meet the demand made upon it by variations of temperature, without being so loose or so exposed as to afford passage for moisture. We doubt not it will secure the approbation of those skilled in such matters. See his advertisement.

A cheap Mouse-trap is described in several of our exchanges, which is, at least, worth a trial. It consists of a glass tumbler, tilted up a little on one side by a small piece of whalebone or other convenient material, the ends of which are fastened together by a piece of cheese. Rest one edge of the tumbler on this bent elastic, with the cheese within or under the tumbler, and the device is complete. If the tumbler rests on a small movable board, the whole may be carried away together to the place of slaughter.



Fay's Portable Hand power Press.—This machine, the simplicity of which cannot be surpassed, has long been desired by the Agriculturalist. It is admirably adapted for pressing hay, cotton, hemp, flax, hops, wool, pummace, linseed oil, cheese, etc. It is strong and effectual, simple in its construction and use, and with common care, one machine will last a life-time. The frame work is all secured together with joint bolts, only twelve of which are required to be removed in taking apart for shipment.

When the timber is thoroughly seasoned, the hay press will weigh about 1100 pounds, and is capable (with two men only) of pressing and baling between five and six tons of herds grass hay, per day, the bundles averaging about 350, of straw 380 pounds, and compressed to 30 cubic feet, proportions of one bale being 29 by 31 inches, and five feet long. It is about 2100 pounds lighter than some of the horse power hay pressess. It occupies but 7 by 3 feet, and one person can easily remove it to any desired place on a floor. Its construction is such that there is no violent flying of doors or breaking of hinges in removing

the door bars, nor any strain upon the hinges when the substance is being pressed; the doors swing open gently, but not until a slight assistance is afforded by hand.

The hay press, shown in the margin, is adapted expressly for those who send their hay and straw to market by vessel or railroad, where snug stowage is an object. The bales are pressed (without additional labor) much more compactly, and being of medium size and weight are more easily and carefully handled. This size occupies 6 by 3 feet. It forms bales 26 by 29 inches, and 4 feet long, compressed to 20 cubic feet, averaging about 265, of straw 285 pounds. The numbers upon the index plates attached to each end of the press, denote as the press beam approaches them, the number of cubic feet in the bale. Price, $95.

Machine for thawing Fire Plugs.—Mr. Ogden, C. E. of the Philadelphia water department, has contrived an effective plan for thawing out fire plugs when frozen. It consists of a small portable boiler with a pipe attached, which is made to bear directly upon the inner pipe of the frozen plug. It does the work within five minutes.

Safety Friction Matches.—A recent English invention consists of matches made of sulphur and nitre only, without any phosphorus, while the phosphorus is applied to the sandpaper, with which the matches are ignited. To us, this seems only to transfer the danger of ignition from the match to the sandpaper. But if this is kept in a safe place, or if it be carefully fastened on the wall, near the place where the matches are to be used, it may be a valuable improvement. It is a good fashion, in regard both to convenience and safety, always to hang up pieces of sandpaper, ornamentally bound and otherwise made tasteful in appearance, as we do a watch case, by the side of our beds or bureaus, by the aid of which a match may be ignited without trouble. One will last, if properly secured, for a long while.

Pocket Printing-Press.—The inventive faculty of a young man of Hartland, Vt., Mr. Livermore, has been engaged, successfully, it would seem, in contriving a Pocket Printing-Press. The case which contains it is five inches long, two and a half inches broad, and one and a half inches thick. This contains the type, ink, paper and machinery. The press is operated by six keys, like those of a piano-forte. The types are composed of the sections of a parallelogram crossed by two diagonals. This parallelogram is cut so as to form all the letters of the alphabet, and in a shape to be easily read, in the impression. The slip of paper, some yards in length, is on a cylinder, and as fast as printed is received on another cylinder. The ink is contained in a piece of cloth saturated with it, to which the types are applied as often as necessary. The rapidity of printing is about equal to that of writing with a pen, as most persons write. Great ingenuity is shown in this little toy, and there may be within it the germ of something of great practical value.

We invite attention to the Emery Brothers' advertisement of their Agricultural Works, 52 State street, Albany, N. Y., in this No.; and we take the opportunity to state that they are supplied with the seed of the Sorgho Sucre, *alias* Sorghum Saccharatum, *alias* Chinese sugar cane, (so many *aliases* are not suspicious in this case,) which they are distributing on reasonable terms to farmers.

JUNIOR EDITOR'S TABLE.

Should we take our "cue" from the spirit that so completely envelops us, extending through a wide extent of country, we might be led to take as a motto, almost involuntarily, the distich cited last month by one of our contemporaries, and found in a monkish tale:

> "The letters were written with blood therein,
> And the leaves were made of a dead man's skin."

But we can assure our readers, the world over, that we are reasonably safe from violence in this great city, wicked as it is. We have walked through its streets by daylight and by gaslight (how unpoetical this gas business, its odor is sulphurous, decidedly,) both alone and in company with friends, for several years, and we have never received the slightest intentional indignity. It is not true that a majority of the people here, or any considerable number of them have cloven feet, or caudal appendages, *a posteriori*, with spear-headed terminations.

Even our own citizens scarcely appreciate the fact, that on a space of territory, scarcely more than six miles by one and a half, hemmed in by the North and East rivers, more people are collected than can be counted in the States of Alabama, Louisiana, Maine, Maryland, or Mississippi, and more than the entire population of Michigan and Missouri, or New-Hampshire and New-Jersey, and nearly as many as the whole population of Massachusetts, or even North Carolina or Georgia.

In all communities, the concentration of population increases the danger of injury to person and property. Look at the great gatherings in the country, where persons of all descriptions of character are brought into close contact. There such crimes are always anticipated. "Beware of pickpockets," so universally to be met with at such gatherings, contains more substantial logic than an entire volume of political essays. Nor can such crimes be attributed to that great father of so many evils—rum.

Let the garroters just sentenced be transformed into the sons of plain country farmers, soon to inherit an estate, without any essential change in their moral nature, and they might pass through life quiet, unobtrusive citizens. In fact, many of these culprits are importations into the city from the country, wrecks, made such by foolish but fond mothers, who were persuaded that it was injudicious to restrain, by any force even, the wayward tendencies of a beloved child. Perhaps he was "sickly." Not a few of our most distinguished criminals, whose recent frauds have astonished even the commercial world, are country born and bred. Parents open a game of hazard, the results of which they cannot begin to calculate, when they send *such* a youth into a great city. But let us turn to more congenial topics.

The season is approaching when our young ladies of taste, and who are willing to do, as well as to enjoy, should begin their arrangements for their summer flowers. We beg leave to caution them against a common mistake, and one into which we fell in our younger days, of cultivating too great a variety of flowers. We have had three hundred species in a single garden. This is consummate folly. For small yards especially, a very few choice plants, of well assorted colors and of some permanence, so arranged as to have from some of them a constant bloom, are far better than a bed filled with small lots of plants,

many of them perhaps little better than weeds, and all crowded together, producing confusion and discord. We would arrange small circular and oval plats, with mounds in the center, and a portion of these beds we would entirely cover with a single species, as Petunias and the like, of varied hues, with a mass of sweet peas, or scarlet cypress vine and the like in the center, a different kind in each bed. Then we would have a variety of Verbenas, sweet scented and others, the Heliotrope and such like, excluding all that perish as soon as they bloom, leaving them for the cultivators of extensive gardens. The Dianthus family, Sweet Williams, etc., are well known among our finest and more permanent flowers, and are highly ornamental in such an arrangement. For still choicer specimens, get the Camelias, and have patience with them till they bloom, keeping them in the ground through the summer, but always out of a hot sun, and moderately moist; you will thus have a spot fit to entertain yourself and friends at evening twilight nearly the whole summer.

Verbenas can be purchased in great variety, and at reasonable cost. Our friend Mr. Dexter Snow, of Chicopee, Mass., has an indefinite variety of them, some three hundred or more, varying in price from twenty-five cents to three dollars each. He has them assorted in packages of twelve plants, each having a prevailing color. One, for example, is chiefly scarlet, another purple, etc., though each package contains some variety, so as not to produce a monotonous effect. Two or three dollars thus spent, will buy many beauties, not inferior to the more pretentious and far more costly with which our female friends love to adorn themselves.

For valuable discoveries and inventions we must chiefly refer the reader to other pages, but there is one suggested by the paragraph we have just penned that we insert it here. We are going to have artificial diamonds. The beautiful quartz crystals, now called "California diamonds," which by the way, are found abundant in more than half the States of this Union, may even be laid aside as unnecessarily expensive. "Diamonds" are manufactured from Boron. French savans, almost always taking the lead of the world in the splendid science of chemistry, have actually succeeded in this direction. The artificial can scarcely be distinguished from the real. In fact, the new rival the old in hardness. The only defect in them seems to be a slight tint. Whether this can be prevented remains to be discovered.

Musical.—M. Strakosch is delighting the New-Yorkers and their visitors with one of the most popular opera seasons we have had for a long time. He has a very efficient company, and he shows himself a very able manager. We hope his success will be commensurate with his deserts.

But our printer warns us, and we must do as the "old clock did which stood in the farmer's kitchen," which "suddenly stopped." *Vide* our old school reader. P.

Crowded Out.—In our Feb. No. we promised an article on the distinction between hair and wool, as deduced from the investigations of Peter A. Brown, Esq., of Philadelphia, exceedingly important as we believe to those engaged in sheep culture, as well as to manufacturers of woolen clothes; but partly for want of space, and more from not having had time to investigate the subject as fully as we wish, we have to defer it to a future number. Several other important matters, both of our own and from correspondents, are necessarily postponed. N.

Domestic and Miscellaneous.

GENTLEMAN FARMING AND SOMETHING MORE.—In our recent trip Southward, we were favored with a most agreeable and profitable interview with G. W. Lürman, Esq., of Baltimore, merchant and farmer, whose clippers plough the ocean, while his teams plough the land.

The following brief account of Mr. L.'s farming, is partly from a statement in the *Horticulturist*, but more from our recollections of his conversation. We commend to the consideration of our readers that part which relates to his rotation of crops.

Mr. L.'s farm contains 600 acres. Of these, 200 acres are used as gardens, orchards, pleasure grounds, and as fields for the cultivation of such articles, on a smaller scale, as he does not choose should occupy the large fields employed for his regular rotation. The 400 acres remaining are divided into five lots, of about 80 each, averaging just 80.

Commencing with pasture land, Mr. L. turns it over in the fall; plants with corn, the first year; sows oats or barley, or both, the second year; when these crops are off, puts in wheat, and sows red clover the following spring, for the third crop; mows, the fourth year; pastures, the fifth; and then goes the same round again.

This gives about 80 acres each year to corn; the same to oats, or barley, or a part to each; the same to wheat, the same to mowing, and the same to pasturing. All the manure of the farm is preserved with great care, composted and ploughed in; and then, portable fertilizers, as oyster shell lime, superphosphate, bone dust and Peruvian guano, are bought to make up the deficiency. Mr. L. denies that on these 400 acres he expends a single shilling for fancy, or does anything but what the man, who farms solely for a living, should do. He says, if we understand him rightly, that he does not manure for the greatest possible *crop;* but aims to bring his land up to that mark which will give the greatest *profit;* and that, he thinks, as we do, is a pretty high mark; or in other words, that high farming, but not the very highest possible, is far more profitable than ordinary farming, notwithstanding that it implies great outlays in labor and fertilizers.

We should have stated that by the cultivation and rate of fruits and vegetables, Mr. L. makes the 200 acres, which some would call pleasure grounds, nearly or quite as profitable as any part of his farm. He supposes that he has demonstrated the often disputed proposition, that farming pays a liberal per cent. on the money invested in it. To our mind he shows, beyond a question, the utter folly of farmers loaning money at 6 per cent., or investing it in stocks, when they need it as a working capital on the farm; and yet thousands are doing this very thing.

We would go into a more detailed account of Mr. L.'s farming, but for the fact that he has given us *some* encouragement—we wish we could say *much*—that he will hereafter give for our journal the facts and figures, showing outgoes, income, and profits. We know he can give us a capital article if he will, and hoping that he will, we wish not to spoil it by anticipating too much. N.

EVERY ONE TO HIS NOTION.—Some prefer the American to the European system of hotel keeping. The central idea of the former is, to furnish the guest with all he chooses to use, or destroy, at so much per day. We are free to say, we do not like it. As we would prefer that our tailor should clothe us by the piece, rather than clothe us and all the rest of the world at a stipulated price per year; so we would

prefer that our host should feed us as we demand, with food which *we think* convenient for us, *such* as we choose to order, and *when* we choose to order it. American we are in all our feelings—none more so—but we do like the European system of hotel keeping, now so fast gaining ground in this country. We can think of nothing better when away from home, than that our host should furnish parlor, reading room, writing room, smoking room, if any will indulge so foolish a practice, and sleeping room, all nicely warmed and ventilated, and then furnish us meals to order, or let us get them where the calls of business or friendship may render it more convenient. The per diem charge for lodgings, use of rooms, attendance, etc., etc., should be sufficient to meet all expenses, and reward the host liberally for his thousand kindnesses and courtesies, and then the guests should be at liberty to breakfast, dine and sup when and where they please, without paying for either, if they choose to take it with a friend or at another hotel, or if business detains them beyond the set hour. These are the peculiarities of European hotel keeping, and we like them. The Dey-Street House in this city is kept on these principles. Its gentlemanly proprietor, Mr. Langly, and his associates, afford every comfort to be found away from one's own home. In short, everything is about as it should be. We have tried it, and speak from experience, and we commend it especially to business men stopping in New-York. See advertisement.

PROGRESSIVE AGRICULTURE.

Our neighbors of the *N. Y. Observer*, say the following good things of progressive agriculture:

"Under its influence spring up tasty and convenient dwellings, adorned with shrubs and flowers, and beautiful within with the smiles of happy wives, tidy children in the lap of thoughtful age—broad hearths, and acts as well as words of welcome. Progressive Agriculture paints barns, and puts gutters on them—builds stables for cattle, and raises roots to feed them. It grafts the wild apple tree by the meadow with pippins or greenings—it sets out new orchards, and takes care of the old ones. It drains lowlands, cuts down bushes, buys a mower, house-tools and wagons, keeps good fences, or practices soiling. It makes hens lay, chickens live, and prevents swine from rooting up meadows. Progressive Agriculture keeps on hand plenty of dry fuel, and brings in the oven wood for the women. It ploughs deeply, sows plentifully, harrows evenly, and prays for the blessing of Heaven. Finally, it subscribes for a good religious, agricultural, and political journal, and pays in advance for them—advocates free schools, and always takes something besides 'the family' to the county fair."

Book Notices, Etc.

The Chinese Sugar Cane and Sugar Making. By Charles F. Stansbury, Late Commissioner at the Industrial Exhibition, London.

This is a valuable and timely treatise on the above subjects, just from the press of C. M. Saxton & Co. It contains 106 pages. The price is 25 cents, for which we understand Messrs Saxton & Co. will forward a copy post paid to any part of the United States. Their place of business is 140 Fulton street, New-York.

Songs and Ballads. By Sidney Dyer. New-York: Sheldon, Blakeman & Co. 1857. 12mo, 298 pages.

This is a remarkably well executed little volume of short poetic effusions, the char-

acter of which is quite in keeping with the exterior. Mr. Dyer has a big heart, and good power of language. His portrait which is opposite the title page shows a man of power as well as of feeling. But the topics here treated are chiefly suggested by home scenes and friends, and do not afford much opportunity for special exhibitions of intellectual strength.

MYSTERIES OF BEE KEEPING EXPLAINED: being a complete analysis of the whole subject By M QUIMBY, Practical Bee Keeper. C. M. Saxton & Co., 140 Fulton street, New-York. 376 pages, 12mo.

This is a new edition, thoroughly revised, of a work too well known and too highly esteemed, to need commendation from us. L. L. Langstroth, who knows as much of bees as any man living, pronounces it, "One of the most common sense works on practical bee keeping which has ever been written in our language." The praise is not higher than the source whence it comes.

TALES AND TAKINGS, SKETCHES AND INCIDENTS. From the itinerant and editorial budget of Rev. J. V. Watson, D.D., Editor of the *N. W. Christian Advocate*. New-York: Carleton & Phillips, 1857. 466 pages, 12mo.

The "Tales," it is implied in the preface, are fiction, the "Takings" negligè descriptions of sundry members of the late general conference, the "Sketches" are on various but important topics, and the "Incidents" facts. "The contents of the volume are composite, the spirit of it homogeneous." It claims no literary merit, and in this it may be over modest. At any rate it contains some amusing scenes.

AUTOBIOGRAPHY OF PETER CARTWRIGHT, THE BACKWOODS PREACHER. Edited by W. P. Strickland. Eighth thousand. New-York: Carleton & Phillips, 1857. 525 pages, 12mo.

This is a well executed volume, as is the preceding, which is filled with the details of the many odd and funny, and often irreverent sayings and doings of this eccentric preacher. It is amusing, but we do not think it a good book. It will have a strong tendency to diminish the little reverence which remains in the public mind for the clerical office, and for the most solemn of religious truths. It is clover for infidels.

WM. HALL & SON have issued some fine pieces of music. Among these are Lavine Polka and Emma Polka, by R. A. Wollenhaupt, The New-Yorker Echo Polka, as played at Laura Keene's Theatre, by Thos. Baker; Beauties of the Valley, in six numbers, carefully prepared for beginners; The Cottage Home Schottish, by Ph. St. Ollmar, and The Flower of Spain, Varsoviana, by Francisco Alonzo, and a very pretty ballad, "Some one to Love," composed by J. R. Thomas. All these are excellent pieces.

List of Patents

ISSUED FROM THE U. S. PATENT OFFICE FROM DEC. 24 (THE TERMINATION OF THE PREVIOUS LIST) TO JANUARY 27.

John Broughton, Chicago, improvement in door springs.

James Culbertson, Covington, Ky., improvement in grinding mill.

William Cady, Eaton, O., improved cross-cut sawing machine.

Tristam Campbell and Henry B. Poorman, St. Louis, improvements in bullet molds.

J. Perley Derby, Boston, improvement in bosom studs.

John G. Ernst, Harrisburg, fire hook.

James Fernald, Boston, improved method of attaching filters to supply pipes.

Russell W. Gates, Homer, Mich., improved machine for upsetting tire.

Charles Green, Bethel, O., improved mortising machine.

Andrew B. Gray and Alex. H. Brown, Washington, D. C., improvement in velocimeters for vessels.

Anson Hardy, Dorchester, Mass., improved rotary shears.

C. Jillson, Worcester, manufacture of animal traps.

Henry Loewenbery, New-York, improvement in traveling trunks.

J. J. Laubach, Easton, improvement in forming joint for sheet metal.

Evan Morris, Philadelphia, improvement in hats.

Josiah S. Pomroy, Chicago, improved method of adjusting circular saws to any required dish.

L. K. Selden, Haddam, Ct., improvement in folding umbrellas.

James Smith, Cleveland, improved weather strips for doors, windows, etc.

James H. Thompson, Newark, N. J., improved raking attachment for reapers.

Andrew Teal, Aurora, Ill, improvement in metallic cross ties and chairs for railroads as a new manufacture.

James Tuerlingx, New-York, improvement in maintaining power for time pieces.

Seth Ward, Princeton, Ind., improvement in riding saddles.

Henry S. Wentworth, Napoleon, Mich., improved self-regulating wind director for windmills.

George P. Woodruff, Watertown, Ct., improvement in buckles.

Jas. D. Greene and Edward Ivers, Philadelphia, assignors to Jas. D. Greene, aforesaid, improvement in air heating furnaces.

Daniel S. Beardsley, New-Haven, Ct., assignor to John D. Umberfield and Daniel S. Beardsley, same place, improvement in ships' cooking stoves.

Benjamin Clarke, Oriskany Falls, assignor to E. L. Ferguson and C. B. Clarke, same place, improvement in extension tables.

Corneil Bradley, Manchester, Va., improvement in valves for steam engines.

A. B. Crossman, Huntington, N. Y., improvement in rudders.

John W. Crannell, Olivert, Mich., improvement in carriages.

Francois Durand, Paris, France, improvement in looms.

Edwin Daniels, Lafayette, Wis., improvement in tanning hides.

Thomas D. Dalton, New-York, improvement in anchors.

Henry Eddy, North Bridgewater, Mass., improved mode of constructing stalls for horses.

Robert H. Fletcher, Brooklyn, improvement in operating slide valves of steam engines.

James Jones, Rochester, improvement in instruments for measuring boards.

Benjamin W. Jewett, Gilford, N. H., improvement in artificial legs.

Orwell H. Needham, New-York, improvement in milking shields.

Samuel Wetherill, Bethlehem, Pa., improvement in processes for reducing zinc ores.

Nathaniel Whitmore, Somerville, Mass., assignor to G. W. Keene, Lynn, Mass., and N. Whitmore, Somerville, aforesaid, improvement in cop tubes.

Samuel H. Little, St. Louis, improvement in hemp brakes.

G. W. B. Gidney, New-York, improvement in pumps.

James P. Cramer, Schuylerville, N. Y., assignor to Hiram Cramer, improvement in cultivator teeth.

Ethan Allen, Worcester, improved fire-arms.

Wm. Padger, Memphis, improvement in cotton seed planters.

Seneca H. Bennett, Bellville, Pa., improved field fence.

Erastus B. Bigelow, Boston, improvement in looms for weaving pile fabrics double.

Samuel Boyd, New-York, improvement in the manufacture of hose.

Robert Brayton, Buffalo, improvement in dies.

James S. Burnham, Yorkville, improvement in pumps.

Wm. Cairns and Jasper Cairns, Jersey City, implement for holding blacking boxes.

Enoch Colvin, Poultney, improvement in knitting machines.

Joseph T. Davenport, Augusta, Ga., arrangement for fixed rails as a substitute for railroad switches.

Horace E. Dimick, St. Louis, improved mode of rifling ordnance.

Joseph Dunkley, Carrollton, Mo., improved automatic regulator for wind wheels.

M. B. Dyott, Philadelphia, Pa., improvement in burning fluid lamps.

Augustus Eliaers, Boston, improvement in stain cases.

Thaddeus Fairbanks, St. Johnsbury, Vt., improvement in platform scales.

Milton Finkle, New-York, improvement in sewing machines.

Sanford E. Finch and Theodore Sharp, Greenbush, improvement in flour bolt, as applied to grinding mill.

Lewis A. Hamblen, Chicago, improvement in locomotive lamps.

Jacob Hockman, Mexico, Ind., improvement in brick machines.

Royal E. House, Binghamton, improved device by which persons approaching may open gates.

A. F. Johnson, Boston, improvement in sewing machines.

Wm. Jones, Speedsville, N. Y., improvement in hay forks.

Rodolphus Kinsley, Springfield, Mass., improvement in presses.

H. Maransville, Clinton, O., improvement in balance for detecting counterfeit coin.

Wm. W. Marsh, Jacksonville, Ill., improvement in oil presses.

Stephen C. Mendenhall, Richmond, Ind., improvement in hand looms.

Robert J. Morrison, Richmond, Va., improvement in the cutting apparatus for harvesting machines.

James F. Orr, Orville, Ala., improvement in cotton gins.

Wm. Ostrander, New-York, improved machine for rolling tapering tubes.

James Parker, Boston, improvement in nipple shields.

Wm. Provines, Columbia, Mo., improvement in excavators.

David F. Randall, Chicopee, improvement in the construction of burning fluid lamps.

J. A. Reynolds, Elmira, improved tubular augur.

Isaac S. Roland, West Earl, Pa., improved method of hanging farm gates.

Joseph Shaw, Richland, Ga., improvement in cotton cultivators.

John Shærer, Reading, Pa., improved hub borer.

Reuben W. Sharp, Montgomery, Ala., improved machine for planing shingles, or tapering pieces.

Alfred E. Smith, Bronxville, improved mode of constructing mail axles and hubs.

Daniel W. Snell and Stephen S. Bartlett, Woonsocket, improvement in looms.

Oded Spencer, Jacksonburg, O., improved bore or support for posts of field fences.

Emerson C. Stranne, Taunton, improved machine for sawing hoops.

Augustus Stoner, Mount Joy, Pa, improved mode of tightening felloes in wheels.

Joseph Thompson, Durhamville, N. Y., improvement in seed planters.

John S. Toan, Venice, N. Y., improvement in corn planters.

Alfred Tourks, Boston, improvement in locks of fire-arms.

Thomas J. Tobnan, South Scituate, improved method of adjusting the size of the mouth, in planes.

David Watson, Newark, N. J., improvement in reaping and mowing machines.

Caleb C. Walworth, Boston, Mass., improved screw-feeding gear.

Wm. Weild, Manchester, Great Britain, improvement in power loom. Patented in England March 7, 1855.

Carlyle Whipple, Lewiston, Me., improved method of hanging and operating reciprocating saws.

D. H. Whittemore, Chicopee Falls, improvement in machines for paring and slicing apples.

M. J. Whitmore, Potsdam, assignor to Frank G. Johnson, Brooklyn, N. Y., and M. J. Whitmore, aforesaid, improvement in calendar clocks.

John B. Wickersham, New-York, improved method of fastening the rails of iron fences in the posts.

O. D. Wilcox, Easton, Pa., improvement in artificial legs.

A. Winter. Pickins, S. C., improved method of hanging, guiding and ajusting "mulay saws."

Wm. Wilber, New-Orleans, improvement in oil-pressing machinery. Patented in England June 12, 1836.

Loftis Wood, New-York, improvement in stove thimbles, or deck iron.

G. F. S. Wright, Black Oak, S. C., improved method of mounting and guiding circular saws.

John G. Vaughan, Middleborough, Mass., assignor (by immediate transfer) to Isaac M. Singer, New-York, improved method of lathing and plastering.

Ira Gill, Walpole, Mass., assignor to Ira Gill, aforesaid, and Elbridge Brown, Malden, Mass., improvement in machines for forming hat bodies.

Daniel Berlew, Delaware, O., improved method of planing sashes.

William B. Bishop, Brooklyn, N. Y., improved guides for sewing machines.

John S. Blake, Claremont, N. H., improved mode of making paper.

John H. Bloodgood, New-York, N. Y., improvement in forming bats for belting.

E. G. Cushing, Dryden, N. Y., improvement in centre vent water wheel.

Alfred A. Blandy, Baltimore, Md., improvement in artificial teeth.

George Gregg, Lowes Mill, Va., improvement in sawing machines.

Elias Howe, Jr., Brooklyn, N. Y., improved sewing machine. Patented in England July 26, 1848.

E. G. Allen, Boston, Mass., assignor to Henry O. Allen, Boston, aforesaid, improvement in steam pressure gauges.

John Goulding, Worcester, Mass., improved mode of weaving double pile carpets and rugs.

John Bishop Hall, New-York, N. Y., improved method of treating photographic pictures.

James E. A. Gibbs, Mill Point, Va., improvement in sewing machines.

George Heberling, Quincy, Ill., improvement in grain separators.

E. T. Henry, Scranton, Pa., improvement in die for making spikes.

M. G. Hubbard, Penn Yan, N. Y., improvement in harvesters.

M. G. Hubbard, Penn Yan, N. Y., improved cutters for harvesters.

Jared O. M. Ingersoll, Ithaca, N, Y., improvement in machine for paring apples.

William Kelly, Eddyville, Ky., improvement in blast furnace.

Pells Manny, Waddams Grove, Ill., improvement in harvesters.

D. C. McCallum, Oswego, N. Y., improved method of constructing bridges.

James G. Morgan, Brooklyn, N. Y., improvement in hydrants.

B. F. Nave, Roanoke, Ind., improvement in brick machines.

Lodner D. Phillips, Chicago, Ill., improvement in hose coupling.

Emil R. Pichler, Boston, Mass., improvement in reflectors for vaults.

William Robinson, Warsaw, N Y., assignor to Amenzo W. Beardsley and William Robinson of same place, improved mode of laying tops for carriage machines.

James D. Sarven, Maury county, Tenn., improved machine for bending timber.

Jos. and Jas. Montgomery, Baltimore, Md., improved winnowing machine.

Samuel R. Smith, Florence, Md., improved method of feeding lumber laterally in sawing machines.

John G. Treadwell, Albany, N. Y., improvement in cooking stoves.

John Wright, Plantsville, Ct., assignor to the S. Stow Manufacturing Company of same place, improved machine for bending sheet metal.

R. H. Smith, Cincinnati, Ohio, improved roofing current.

ADDITIONAL IMPROVEMENT.—Robert J. Morrison, Richmond, Ind., harvesting machine.

John Allcroft and Thomas Mighten, New-York, improvement in steam and pressure gauges.

Wm. Bennett, New-York, improvement in radiators for fire place grates and Franklin stoves.

Geo. W. Bishup, Brooklyn, N. Y., improvement in stone grooving machines.

R. P. Bradley, Cuahoga Falls, O., improvement in the machines for shearing sheep.

Saml. Bradbury, Griggsville, Ill., improvement in machines for trimming hedges,

James S. Brown, Pawtucket, Mass., improvement in speeders.

John Broughton, Chicago, Ill., improved sash fastener.

Tenison Chester, Middleburg, O., improvement in inserting buckets in water wheels.

Saml. Cobb, Cincinnati, O., improved corpse p reservers.

Geo. Cook and David Cook, New-Haven, Ct., improvement in calash carriage tops.

Geo. Crangle, Philadelphia, Pa., improved rotary brick machines.

Michael DeCamp, South Bend, Ind., improved grain separators.

Lewis F. Currierl, Portland, Me., improved method in hulling rice.

Geo. N. Cummings, Hartford, Ct., improvement in soldering spectacles.

Lyman Derby, New-York, improved tailors' measures.

James B. Eads, St. Louis, Mo., improved method in blasting rocks under water.

Jeremiah D. Eggleston, Canaan, Ct., improvement in feed boxes of bee hives.

Henry A. Fowler, East Guilford, N. Y., improvement in fastenings for hames.

Richard J Gating, Indianapolis, improvement in machines for fallowing land.

Heinrich Genhart, Leige, Belgium, improvement in repeating fire-arms.

James W. W. Gordon, Catonsville, Md., vaccinating instrument.

James W. W. Gordon, Catonsville, Md , spring lancet.

Robert Grant, Brooklyn, process for making illuminating gas.

Samuel Hall, New-York, improvement in cutting sheet metal.

George E. Hay:, Buffalo, mounting of artificial teeth.

James Harrison, Jr., New-York, improved machine for making coiled springs.

Moses G. Hubbard, Penn Yan, improvement in harvesters.

Edward G. Hyde, Irvington, acoustic auricle.

Frank G. Johnson, Brooklyn, improved method of constructing fence posts.

John P. Jourds, New-York, improvement in raising sunken vessels.

Edward Keith, Bridgewater, Mass., improvement in cotton gins.

Anthony Kuhn, Baltimore, improvement in keyed harps.

Charles T. Leirnur, Mobile, improvement in compound rail for railroads.

Matthias Ludburn, Essex, N. Y., life boat.

John M. May, Janesville, Wis., improved self-regulating wind mill.

Joseph B. Okey, Indianapolis, improved lath machine.

M. L. Parry, Galveston, improvement in cotton presses.

David Pollock, Lancaster, Penn., improved ore cleaner.

John F. Reeve, Richmond, Ind., writing pen.

Sam'l S. Ritter, Philadelphia, improvement in hernial trusses.

Daniel W. Shares, Hamdon, Ct., improvement in harrows.

Alfred E. Smith, Bronxville, improvement in axle boxes.

Wm. T. Tillinghast, Dayton, O., composing stick for printers.

Isaac Van Hagen, New-York, improvement in oil cases.

Abner Van How, New-York, improvement in core boxes.

James Noble Ward, United States Army, improved mode of altering flint lock fire-arms to percussion.

Geo Wellman, Lowell, improvement in machinery for stripping the top flats of carding engines.

Elbridge Wheeler, Faltonville, Mass., improvement in machine for forging metal.

F. H. Whitaker, Cincinnati, improvement in nut machines.

Elbridge Wheeler, Marlboro', Mass., improve' clamping machine.

Wm. Wilber, New-Orleans, improvement in mills for tempering oleagenous seeds. Patented in England June 12, 1856.

Wm. Wilber, New-York, improvement in machines for hu'ling and separating cotton seeds.

Thomas S. Woodworth, Salem, N. J., improvement in supporting masts for the decks of vessels.

Frastus D. Wooding, Dixon, Ill., improvement in seeding machines.

A. F. Chatman, New-York, assignor to himself and Jacob Pecure, same place, improved door spring.

Sylvester Sawyer, Fitchburgh, Mass., assignor to the American Hoop Machine Company, improved machine for planing hoops.

Jos. C. Silvy, New-Orleans, assignor to Thos. J. Dobyns, same place, improvement in fountain pens.

Peter L. Weimer, Lebanon, Pa., and Samuel P. Francisco, Reading, Pa., assignors to Samuel P. Francisco, improvement in operating the valve of steam hammers.

Welcoure Whitaker, Troy, assignor to Henry L. Palmer and Julius H. Skilton, same place, vermin destroyer.

Clarissa A. Hubbard, executrix of Guy H. Hubbard, dec'd, (late of Shelburn Falls, Mass.,) improvement in machines for paring and slicing apples.

RE-ISSUES.

Sam'l R. Wilmot, New-York, portable steam sawing machine. Patented August 14, 1855.

Geo. W. Geisendorff, Indianapolis, and Jacob C. Geisendorff, Cincinnati, O., improvement in axle cox rollers. Patented Feb. 6, 1855.

Whitten E. Kidd, New-York, improvement in molds for pressing bonnet fronts. Patented Nov. 28, 1845.

Wm. H. Walton. New-York, improvement in cleaning the top flats of carding engines. Patented Dec. 9, 1856.

William E. Nichols, East Haddam, Ct., improved method of making cord. Patented Dec. 11, 1849.

AGENTS FOR THIS JOURNAL

Recognized as such at this office, are as follows:

S. D. Allen, Paul A. Davis, in the Northern and Middle States; James Deering and Henry M. Lewis, in the Southern States. Require a certificate of agency from all others who present bills, the date of which is as recent as July, 1856.